THE POLAR TIMES

Official U. S. Navy Photograph

THE U.S.S. *VINCENNES*, FLAGSHIP OF THE EXPLORING SQUADRON, OFF THE ANTARCTIC CONTINENT

From a drawing by Charles Wilkes, commander of the expedition. The men in the fore center are chopping the ice from a pool to obtain a supply of fresh water and thus conserve fuel.

NORTHERN HEMISPHERE

HOURS OF SUNLIGHT

DIRECTIONS

1. FIND THE POINT WHERE THE LATITUDE YOU WANT CROSSES ANY GIVEN DATE.
2. FROM THIS POINT LAY A STRAIGHT-EDGE ACROSS THE SMALL "X" REPRESENTING THE NORTH POLE.
3. WHERE THE STRAIGHT-EDGE CROSSES THE SEMICIRCULAR SCALE AT THE TOP, YOU WILL FIND THE NUMBER OF HOURS OF SUNLIGHT

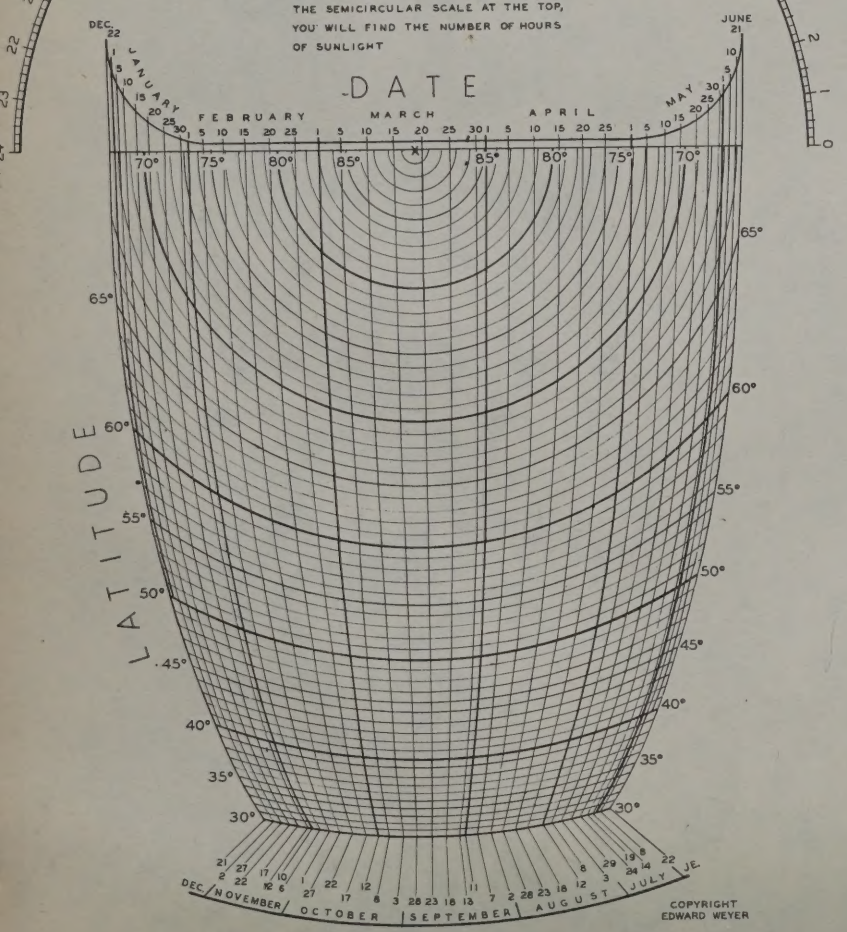

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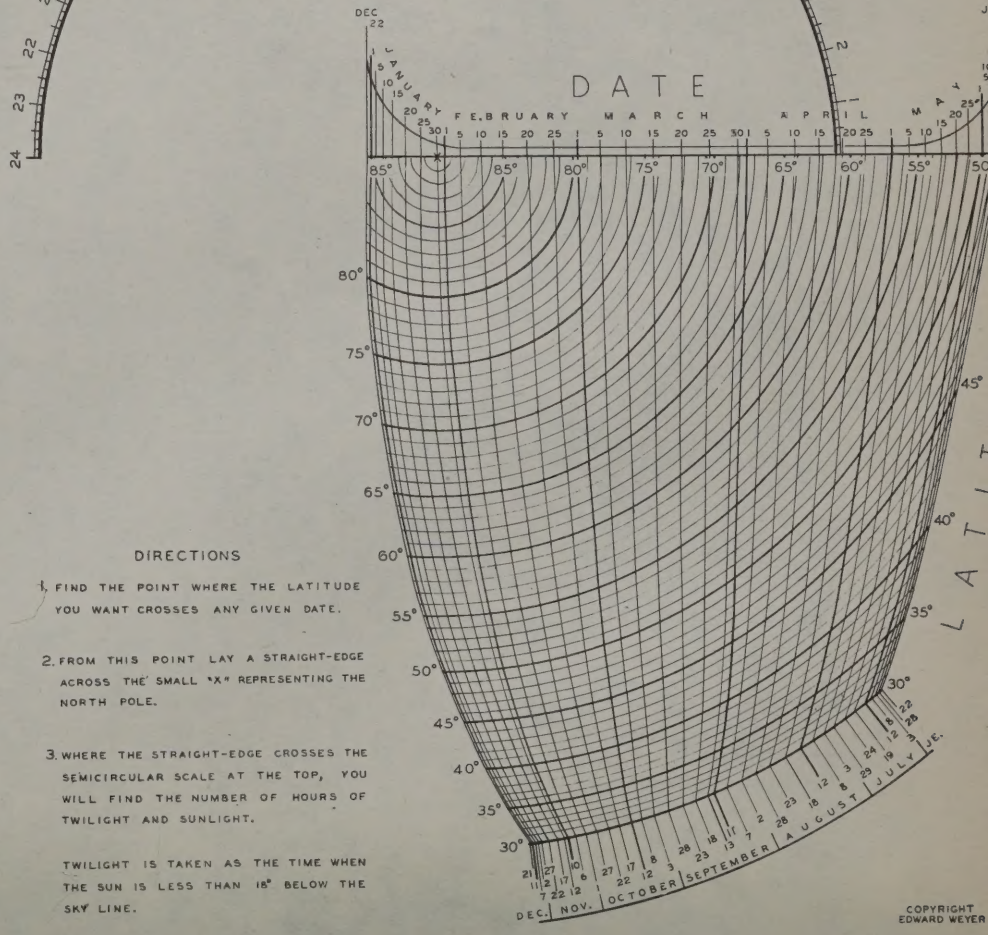
FIG. 1

NORTHERN HEMISPHERE

HOURS FROM DAWN TO DARK - TWILIGHT & SUNLIGHT



DIRECTIONS

1. FIND THE POINT WHERE THE LATITUDE YOU WANT CROSSES ANY GIVEN DATE.
2. FROM THIS POINT LAY A STRAIGHT-EDGE ACROSS THE SMALL "X" REPRESENTING THE NORTH POLE.
3. WHERE THE STRAIGHT-EDGE CROSSES THE SEMICIRCULAR SCALE AT THE TOP, YOU WILL FIND THE NUMBER OF HOURS OF TWILIGHT AND SUNLIGHT.

TWILIGHT IS TAKEN AS THE TIME WHEN THE SUN IS LESS THAN 18° BELOW THE SKY LINE.

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FIG. 2

The Polar Times

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No. 17. DECEMBER 1943.

DAY AND NIGHT IN THE ARCTIC

EDWARD WEYER, JR.

THE GEOGRAPHICAL REVIEW

July 1943

WE used to be told that the Eskimos live in a land where there are six months of day and six months of night. Even today many are doubtless uncertain how long an Eskimo night really is, though air routes across the Arctic are making this question important, not only to the Eskimos but to all of us.

It matters much to a pilot whether daylight will last long enough to see him over a mountain range or across broken ice to a safe landing. He travels so fast that within a few hours he may pass from temperate-zone conditions to the far different ones of the high North. Many activities besides flying also are governed by the length of daylight and darkness in the Arctic—hunting, for example, and sledging, the building of airports and roads, and even farming. Long hours of daylight in the summer enable Northern farmers to grow vegetables of record size. Twelve-pound cabbages have been raised at Good Hope, just below the Arctic Circle, and a 14-pound rutabaga, a 12-pound turnip, and a 7-pound cauliflower at Unalakleet, in about 64° N.[1]

In peacetime the midnight sun was one of the attractions of a trip to the North Cape. In wartime it is one of the hazards of the supply route to Murmansk. Yet a simple chart showing at a glance how many hours of continuous daylight can be expected at a given latitude has never been prepared, so far as the writer is aware. In October, 1931, the *Geographical Review* published an informative article entitled "Seasonal Variations in Daylight, Twilight, and Darkness," by S. W. Boggs of the United States Department of State. Conditions were depicted in separate small charts for nine latitudes both north and south of the equator and for the equator. Information was also given concerning the factors determining the duration of twilight.

A different type of diagram was published in the German periodical *Arktis* in 1930.[2] It divides the globe seasonally into zones and is useful for determining the general pattern of sunlight, twilight, and darkness, but it does not tell the actual number of hours and minutes of each. This lack caused the writer to undertake the construction of the two accompanying charts. A ruler or some other straightedge is all that is needed to use them.

The war has taken thousands of people into the Arctic for the first time. A man working on a new airport or some other defense project may ponder over the calendar to his wit's end without discovering when daylight will become so short as to curtail operations. The mathematical determination is by no means simple or rapid.

Suppose you want to know how long the sun will stay above the horizon at Reykjavík, Iceland, on May 20. Reykjavík is at latitude 64°. Find the line for May 20 under the date, and follow it down to the point at which it crosses the 64° curve. From this point lay a straightedge so that it falls across the small *X* corresponding to the North Pole. The straightedge touches the semicircular scale at the top at 18 hours 50 minutes—the answer.

The chart will work backward as well. If it were May 20 and you wanted to know your latitude, you would need only to note that the sun remained above the horizon for 18 hours and 50 minutes to know that your latitude was 64°.

Because one half of the year repeats the other in respect to distribution of sunlight and darkness, the calendar scale is given half at the top of the graph and half at the bottom.

The Arctic Circle is often taken as the southern boundary of the land of the midnight sun. Actually, because of the refraction of the atmosphere, the midnight sun can be observed some miles south of the Arctic Circle. This has been taken into account in the chart. An angle of 34′, a conventional average, has been allowed for the visible distance below the horizon due to refraction. The sun is not considered to have set until its upper edge—"limb" in technical speech—has disappeared. It will be seen from the chart that a 24-hour day without sunset will occur at about 65½° N. instead of at 66½°.

Moreover, in the depth of winter you must travel about a thousand miles north of the Arctic Circle to get continuous, complete darkness for 24 hours. This should not be surprising when you consider that true darkness in the North is both preceded and succeeded by a long period of twilight. At the Pole there is about a month and a half of continuous twilight in both spring and fall.

The second chart shows the seasonal change in twilight according to latitude. You work it in the same way as the sunlight chart, and it gives you the total hours of twilight and sunlight. To get the length of twilight itself, subtract the sunlight figure taken from the first chart for the same day in the same latitude. Twilight is considered, according to accepted standard, as the time when the sun is no more than 18° below the horizon.

In about 78° N., where the northernmost inhabitants of the world live, the sun stays above the horizon continuously for more than 4 months. In winter there are about 16 weeks when it does not appear above the sky line, but the true night is much less; in fact, there is no time, even in the middle of this 16-week period, when there is not twilight during more than a third of each 24 hours—a very different situation from the 6 months of night we used to be told about.

It will be for the agricultural scientist to extend the use of these charts in questions of plant growth. And the "dawn patrol" should find them useful in planning their flight schedules.

Method of Constructing the Diagrams

The diagrams are essentially nomograms for solving the conventional astronomical triangle in which a constant term is the maximum zenith distance of the sun, namely 90° 50′ in the case of the sunlight diagram and 108° in the case of the twilight-sunlight diagram. The two known variables are the latitude and the sun's declination, the latter being directly related to the date. The unknown is the hour angle of the sun, which by definition is half the time between sunrise and sunset or between the beginning and end of twilight-and-sunlight as the case may be.

In devising a suitable graphical system of lines and scales for reading the time element when the latitude and date are given, it was first decided that for easy interpolation the time scale should be the arc of a circle marked off in even parts. By compressing the 24 hours of this time scale into half the circumference of a circle centered on the point *X* it becomes obvious that the angle measured counterclockwise at *X* from zero hours or 24 hours is the hour angle.

The trigonometrical relationship between the hour angle and the given data is

$$\cos A = (\cos a - \sin b \sin c)/\cos b \cos c,$$

in which *A* is the hour angle, *a* the zenith distance, *b* the latitude, and *c* the declination.

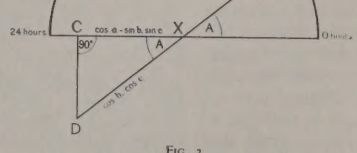


FIG. 3

In Figure 3, in the right triangle *DCX*, if the angle at *X* is the hour angle, then

$$XC/XD = \cos A,$$

$$XC = \cos a - \sin b \sin c,$$

and

$$XD = \cos b \cos c.$$

Any *D* point can therefore be easily plotted graphically for any combination of latitude and declination. Actually, in constructing the diagrams, when a sufficient number of such points had been located, smooth curves of latitude and date were then drawn.

[1] See also the examples cited by W. D. Albright: Gardens of the Mackenzie, *Geogr. Rev.*, Vol. 23, 1933, pp. 1–22.

[2] Wilhelm Meinardus: Räumliche und zeitliche Verteilung der Beleuchtung im Polargebiet, accompanying his article "Zum jahreszeitlichen Gang der Beleuchtung in den Polargebieten," *Arktis*, Vol. 3, 1930, pp. 4–6.

Dr. Gruber Sees Alaska as Key to U. S. Future

Government Field Worker Hails 'Rediscovery' of Territory as Crossroads of America and Asia, Predicts Vast Development in Air Era

The most important fact in geography and history that we have learned from the war is the fact that Alaska is only fifty miles from Siberia. Primitive man knew that when he first came to America from Asia by way of Alaska. We have rediscovered the crossroads. We have learned again that the shortest and most logical route between America and Asia is not across the ocean but directly across Alaska. Geography is Alaska's sinew of war.

Her location on the globe will make her grow as Asia grows, as Canada grows and as America grows. Alaska is our frontier to the post-war world, our key to the future. The Soviets are pushing industries and cities east of the Urals; China is unifying itself; millions of Asiatic people, whose standards of living are rising, are going to demand American automobiles, American tractors, Kelvinators, Fuller brushes and Lux toilet soap. Alaska is the natural gateway to those markets.

Let me try to describe Alaska to you. It sits proudly on two oceans, the North Pacific and the Arctic, with the Bering Sea to link them. Behind it lies Canada; below it, in a straight line, lies Hawaii; befor it lies Siberia. It is so enormous that if you put a map of Alaska on a map of the whole United States, you will find that the body of Alaska covers the entire Middle West; southeastern Alaska would reach to Georgia, and the long tail of the Aleutians would sweep out to California.

Alaska seems to have a chunk of everything American. Are you from Iowa? The interior has flat land and fertile valleys. Are you from the forest lands of Oregon? Southeastern Alaska is an almost uncut primeval forest. Are you from Los Angeles? Alaska has plenty of mist. New Jersey? The mosquitos in Alaska are as big as Army bombers, if you believe the soldiers who have fed them blood. Planes alone can trek through time and squeeze these distances, and when you fly over sections of the highway and coast, when you see below you flowing rivers of ice, and fields of glaciers, you feel, well, almost as though you were flying over the first day of creation.

Alaska has suffered from its own picturesqueness. Travelers have come back to us telling not of the schools, not of the university and the excellent churches, but of the wild no-man's-land of Eskimos and igloos, a land stuck like a legendary ice cream cone with ice on top and nothing on bottom. Actually, most of our Alaskan Eskimos don't even know how to build a snowhouse. They live in wooden houses or sod huts.

Tuxedos and Highballs

The other half of the population is made of Americans of all races who came yesterday or forty years ago, who speak English with all accents, including the Scandinavian, who drive Buicks and Fords, who play pingpong and bridge, who have a delegate in Congress, elect their own Legislature, drink highballs and Coca-Colas, and wear more evening clothes in a year than most people in New York wear in a lifetime.

Alaska is no Paradise on Earth. Neither is it Hell Frozen Over. It is a big land and it is an empty land. In all that geographic vastness, in a land with summers that are hotter than Florida's and winters that are cold, there live only 80,000 civilians; just about the number who watch a single football game on Saturday.

Tomorrow, I think, the story will be different. There is a new challenge in Alaska, and throughout the nation there is a new dream. Each week we in Washington receive hundreds of letters from men and women, telling us that they have heard about Alaska, that the thought of it has gotten into their blood, that they want to go North to homesteads, to farm, to teach school, to open grocery stores and bakery shops, to work in beauty parlors and on the Alaska railroad. Those letters, written not with cynicism or fear but with a clean and healthy optimism, are shining proof that the people, the good solid people, are looking to Alaska as one of the places where men and women of all races and creels, coming home from a war that they have fought brilliantly, can help build a decent world.

The Soldiers' View

You learn a good deal from soldiers living in Alaska. Those long evenings, sitting on bunks and trunks out there in the Aleutians, in the barracks of the men, we really let down our hair. Some of the men hated Alaska. Their remarks were devastating: "Why don't they sink Alaska?" "Why don't they give it back to the Eskimos?", "By golly, if the Japs take Alaska, it pretty well serves them right." Of course, good, healthy grousing is one of the characteristics of the American Army.

But many of the men had caught the spirit and freedom of the North. Alaska had taken strange hold. A soldier just back from two years in the territory came to see me the other day. "You remember how I hated it when you were there," he said. "I remember." "I've been home for three weeks and I've got a different angle on it now. Alaska is my self-assurance. Knowing that country is worth more to me than a million dollars in the bank. Every boy who's been up there feels that he can thumb his nose at the whole world. Alaska has shown us that there is a place where we can be more than just cogs in a great wheel.

For a long time Alaska has been called a man's country. I should like to change that, I should like to call it a woman's country. Here is where women can prove, socially and politically, that women can be leaders, just as men can be leaders, if they are given the chance. Women who go North hardly know the meaning of loneliness. Alaska is a good place for girls whose ego needs a little boost. Any girl suffering from a not-too-advanced spinsterhood might profitably trek northward. In fact, the farther North you go the more beautiful you become. A dance in a place like Dutch Harbor makes you feel like a cross between the Duchess of Windsor and Hedy Lamarr.

The United States Employment Service in Seattle has hundreds of jobs for women in Alaska who are not married to men stationed there. Everywhere you go in the Territory you hear the cry: "Send us people. Send us workmen. Send us women." The need for women is enormous. But only the strong and the courageous ought to go.

Life There Not Easy

There is a glamour in the North, but life is not easy. Many of the women who went to Alaska grow weary of the isolation, tired of chopping wood in the interior, and carrying umbrellas on the coast. Others grew sullen and bitter because they found not the human warmth and hospitality, not the greatness in emergencies of the small town, but its naked cruelty and its gossip. They left, hating Alaska violently.

A man, too, needs firm eyes and the will to withstand discouragement on the frontier. Alaska is no place for city or farm weaklings. Every farmer ought to have at least $3,000 to tide him over those first heart-breaking years when his land must be stumped and cleared, when his crops are uncertain, his roads unfinished, and his markets are unknown.

A workingman, even with a job waiting for him in Alaska, ought to have some money before he goes. Living costs are very high. Amusements are few.

But for men and women of courage, Alaska offers the same promise that America offered to the millions who were frustrated in Europe. What you need on the frontier, besides muscle and ambition, is imagination, a pair of rubber boots and a sense of humor. There was a construction worker

Dr. Ruth Gruber Field Worker For U. S. Government in Alaska

Dr. Ruth Gruber acquired her academic title at the University of Cologne in 1932, when at the age of twenty she was the youngest holder of a doctorate in philosophy on the University's records. In the intervening years she has traveled the Soviet Arctic, written a book about it and made two trips to Alaska as field representative of the Department of the Interior.

When she was appointed to the post in the Department of the Interior she was attacked in the House of Representatives because the report of her studies in the Arctic, which she set down in "I Went to the Soviet Arctic," led Representative John Taber, Republican, of New York, to believe that she had Communist leanings.

On Mr. Taber's motion, the House voted, 64 to 49, to remove Dr. Gruber from the Interior Department pay roll, but after a number of prominent persons had protested and Harold L. Ickes, Secretary of the Interior, had appeared before a Senate subcommittee to deny that Dr. Gruber was a Red, a joint House-Senate committee replaced Dr. Gruber's name on the pay roll.

Dr. Gruber's interest in the reaction of youth to the political ideologies of the present began when she was a student at the University of Cologne in the days immediately preceding Hitler's rise to power, when students were often harangued by Nazi speakers.

Dr. Gruber had gone to Germany equipped with a Bachelor of Arts degree acquired at New York University in three years of cramming at N. Y. U. and at Mt. Holyoke and Harvard in the summers, and with a Master of Arts degree earned at the University of Wisconsin.

Appointed an American exchange student, she had no intention of working for her doctorate at the University of Cologne, but was persuaded to do so by professors of the university. She won the degree in a year, magna cum laude.

and his wife whom I visited at a new naval air station. For years they had known only reverses. Now, though they were middle-aged and had grown children, they had become twentieth century pioneers. They had bought some land facing a bay, and, until they could finish building their home, they were living in a tent, a Sears Roebuck tent. The woman had fixed that tent so that it was almost a work of art. She had hung it with pictures from magazines and with red pots from the five and ten. She baked the bread in a tiny oven; she hauled the water; she chopped the wood; she read by the uncertain light of a gasoline lantern. But she and her family were intensely happy; they were getting down to the roots of life again: they were lowering the barriers that cities and worries had created between life and themselves.

"Won Self-Respect Again"

"This tent," she said to me, "this beautiful bay outside our door! You know, it's all like something I used to dream about. When my husband comes home from the naval base we walk along the beach and pick up shells—imagine, at our age! It's really our first honeymoon. The depression had hit us hard. We were sick with worry over how to meet our bills —doctor's bills, store bills, grocery bills. We never caught up. Now, for the first time in our lives, we have money, we don't have to worry. We can go into any store and look around and say to ourselves: 'I can buy that, I can buy anything I want.'" She stopped for a moment. "But, more important than having money, we have won self-respect again. Alaska has given us back our dignity."

But not only the white people, but the Eskimos, the Indians and the Aleuts, who live along the Aleutian Islands, these three native groups, whose ancestral roots are in the soil and who make up almost half of Alaska's population, are helping us win the war and build the future. Their sons are in the Army.

Lieutenant Bertrand Leask, an Alaskan Indian boy, helped bomb and sink an Axis tanker in the Mediterranean. Their women are knitting and rolling bandages for the Red Cross. All of them are buying war bonds. When the Eskimo people of St. Lawrence Island, a village in the Bering Sea a bare twenty miles from Siberia, heard that we were giving 10 per cent of our income for war bonds they voted to give 100 per cent of their community funds.

Secretary of the Interior, Harold L. Ickes, who has jurisdiction over Alaska, has repeatedly told the natives that, unlike the minorities of Fascist Europe, the Indian need not die, he must not die, he must live. Our job, he has said, is to integrate the beautiful culture of our Alaskan peoples into the stream of our entire national life. Our policy is not to make museum

REPORTS ON ALASKA'S FUTURE—Dr. Ruth Gruber

pieces of them, but to help them through education and hospitals to become leaders of their own people, to help them to help themselves.

Those Eskimos in the North are among the most noble, the most happy, and the most dignified people with whom I have ever lived. All the native children attend government schools. I helped run one of those schools for a few days and I have never seen children who were more hungry for information about the rest of the world. When I asked those children what they liked best to do, about 75 per cent of them said they liked best to read "Life" magazine. They get it once a year, twelve months' issues on one ship. The other 25 per cent liked to do fractions in arithmetic. Needless to say, I let them read "Life" magazine and then asked them to write what they had read. Almost every child in that room wrote about the advertisements. One child wrote—and I can think of no writer who has told that plot with such economy of words—"This is the story of a girl. She is waiting at the church. The groom has left her. She did not learn. She has bad breath."

Alaska, you can see, has its human resources, but they are overshadowed by the physical wealth of the land. Since 1867, when Seward bought it from the Russians for $7,200,000 after a game of whist, we have gotten a thousand times our investment; a billion dollars' worth of fish; a hundred million dollars' worth of fur; six hundred million dollars' worth of gold; two hundred million dollars' worth of other minerals: copper, platinum, silver, iron, and now we are finding oil and tin.

In one forest alone, the beautifully named Tongass National Forest, there are about three million acres of salable timber. Some experts believe that the lumber industry in southeastern Alaska alone could give employment to about thirty thousand people.

You all remember the dust-bowl farmers who were sent by the government in 1935 to the Matanuska Valley. Perhaps you have been told that the experiment was a failure. It isn't true. For seven years the valley has been a laboratory demonstration in democracy. Seven years may seem long in the time of a newspaper, but they are short in a farmer's almanac. Those seven years proved the two things that the experiment set out to prove: first, that farming is feasible in Alaska (most Alaskans knew this, but the nation didn't), and, secondly, they proved that you can take good farmers who have been living on sub-marginal land, give them new soil and new opportunity, and they will become citizens proud to raise their children in these United States.

Now I have some good news to tell you about these Alaskan farmers. This last summer the valley has grown to be more than a study in democracy. It has became a magnificent success. The valley's farmers earned more than a million dollars in dairy, meat and vegetables. They helped feed the local Army and civilian population at a crucial time when every ship to Alaska was needed for munitions and supplies to get the Japs out. They earned a quarter of a million dollars just in potatoes. In a national fair a few years ago, Alaskan potatoes took first prize. A homesteader this summer made $2,200 from a quarter of an acre of celery. Some of the farmers are earning $800 a month in milk and cream and butter.

More Expansion Ahead

Fishing is Alaska's most important industry, and it, too, can be expanded by extracting vitamins and using the by-products of fish for fertilizer. The mineral possibilities of the country haven't been scratched; the fur industry can grow; power plants can electrify and industrialize whole sections of the North.

There is room, too, for small industries, both for export and for home consumption. There is room for small family unit sawmills, for arts and crafts with the label "Made in Alaska," tourist industries, hotels, auto camps, and so on. Alaska can become a great and beautiful playground.

But transportation is still the first problem of Alaska. I am convinced that Alaska's future lies in solving that problem of transportation. Her greatest promise lies in the air, as a terminal for the short air routes between America and Asia. We now have civilian and military airplanes latticing the whole territory. The war has taught us how to build airfields over night. The famous Alaska Highway now links Alaska through Canada to the States. That road is no Westchester Boulevard. For the most part it, is a good, graveled, two-lane country road. It was built by white and Negro soldiers, and by construction workers who knew what they were building for. That's why they could break a 1,500-mile trail in nine months through muskeg and forests. They knew that this road would help win the war faster. They knew that it would service and fuel the short, safe, lend-lease airway to Siberia. They knew that after the Japs and the Germans were licked, this would become a great post-war road to new frontiers.

Natural Trade Gateway

We know now what explorers like Stefansson predicted and what the pilots made real: that Alaska's future lies in the trade routes of peace as well as in the strategic routes of war. In a world shrunken by air transportation, Kamchatka is virtually at New York's back door. Alaska is the crossroads of that shrunken world.

We have a great deal to learn from our neighbors across from Alaska. We need Soviet weather information to plot our weather maps. Weather is still pretty much of a military secret, but it is no

secret that most of our weather in Alaska and in the North Pacific is manufactured in Siberia. The Arctic and Antarctic are the weather kitchens of the world. On the basis of weather information from stations in the Soviet Arctic a few of the Russian scientists are predicting the weather for their whole country a year in advance. I am revealing no military information when I tell you that we are establishing a network of weather bureau stations in Alaska which, I trust, will continue to gather and send national and international weather reports after the war. Remember, there are no politics in the weather.

You will hear many of our philosophers of despair wailing that frontier days are over, that the frontier spirit is an anachronism, and that, since we have not opened wide our doors to political refugees from Europe, we have, ipso facto, broken the frontier pattern which made us great. I believe that they are wrong. I believe that we are still a frontier people. We have not lost our virility, our love for fearless freedom. Alaska is our newest frontier, our newest rebirth, our newest responsibility.

But Alaska won't be populated by phrases. Good pioneers won't move northward because of slogans like "Short Cut to Tokio" and "Dagger to Japan." Alaska will have to prove that it has room for industrialists and managers, for risk capital and cautious capital, for farmers and laborers. What Alaska needs is families. It needs honest, hard-working, rugged men and the kind of pioneer women who helped to build the West. With such people, the nineteen-forty-niners can write a century of history.

Major Task Ahead

But they can't hope to find success the first year. It takes capital to make the industries pay. It takes labor to make them function. It takes government to subsidize transportation. It takes the right kind of publicity and it takes the right kind of sound, enthusiastic public opinion. The government can pour millions into Alaska as a springboard for war and as a crossroads for peace. But that money won't induce anybody to stay unless the whole nation, unless you and I, blast our ice and snow misconceptions and realize that Alaska can be opened successfully only by management, labor and government co-operating.

I can see airplanes flying regularly from Chicago through Alaska to Yakutsk, Moscow and cities in Europe, the way Wendell Willkie and Ambassador Joseph E. Davies flew home. I can see roads linking us with our next-door neighbors in Siberia and China. I can see many of you leaving your homes in New York and California and driving all around the world, by way of Alaska. I can see these roads through Alaska breaking through the race prejudices and the medieval fears that we have been taught about Asia and Europe, even as we have been taught them about Alaska.

I once visited a hut in Yakutsk, and one of the first songs they played for me was "Who's Afraid of the Big Bad Wolf?" I knew then that the isolation in the world had been broken by music. Now, with Alaska as a depot to the world, I can see that isolation broken by the strong cords of commerce and of friendship and of understanding.

This is no day dream. Was it a day dream when the first Colonists landed on Plymouth Rock and began to build their houses of logs? Was it a day dream when the pioneers went westward and dreamed of settlements in the Great Plains and the fertile valleys? Surely there was heartbreak. When, in all the wanderings of man on the face of this globe, has there not been heartbreak? In the opening of the West, historians tell us, about 50 per cent of the people turned back. In the opening of the North, we would have to expect at least the same proportion.

But if 50 per cent of the tens of thousands who have heard of Alaska, who have seen it under fire, and who think they want to live there, turn homeward, that will still leave thousands to build homes, to utilize the wealth and give their children the right to live with decency and dignity, without hunger and without fear.

U. S. Building Tidewater Spur to Alaska Road

By Fergus Hoffman
The Christian Science Monitor

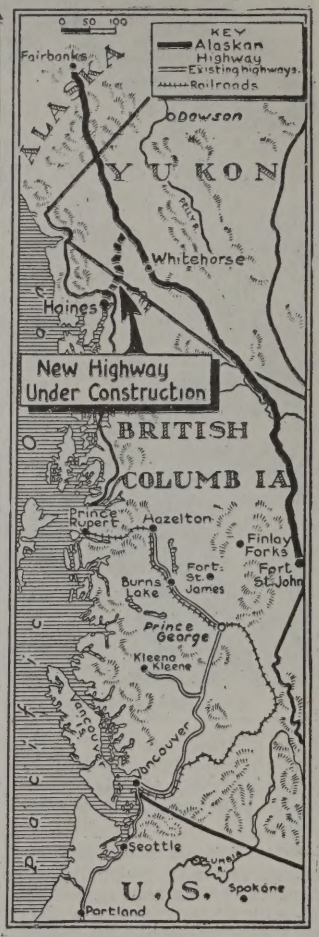
HAINES, Alaska—Without any of the fanfare of publicity which accompanied construction of the Alaska Highway last year but with the same spirit of urgency and determination, the United States Army Engineers are building a new military road to interior Alaska from this once sleepy hamlet on the shore of mountain-girded Lynn Canal, 1,000 miles north of Seattle.

The new road, which the Engineers have been ordered to complete by Nov. 1, will link the Alaskan seacoast with the Alaska Highway at a point 108 miles north of Whitehorse, Yukon Territory. It will be approximately 145 miles long, winding through some of the most scenic reaches of Southeastern Alaska, northern British Columbia, and the Yukon, and will provide a short cut to Fairbanks which not only will shear more than 1,000 miles from the land supply route, but also will vastly reduce the cost of transporting war materials to Fairbanks.

At present, construction crews under the supervisory command of Brig. Gen. James A. O'Connor, head of the Northwest Service Command, are working toward a junction from both ends of the project. In the mountainous wilderness between the road crews, survey parties are staking out the right-of-way which the road will follow. Using bulldozers and power shovels where less than half a century ago ox teams and dog sleds were the only modes of transportation, the road builders have tackled a task fully as difficult and fully as important as was the construction of the Alaska Highway.

All-Year Supply Route

By linking the Alaskan Coast with the interior highway the Army will provide an all-year, inexpensive supply route to Fairbanks. Barges and freighters from Puget Sound will discharge their cargoes here to be picked up by a fleet of heavy-duty trucks for the haul to Fairbanks. Cheap water transportation from Seattle up Alaska's famed "Inside Passage" to Haines is expected to revolutionize Alaska's war economy.



Why wasn't this land-and-water route built in the first place, instead of the Alaska Highway? The Army has the answer to that—military security.

In the dark days just after the attack on Pearl Harbor, the nation's military planners had no guarantee that the coastal Inside Passage would remain open. No one knew where the Japanese would strike next; there was every possibility that they might attack Alaska's southeastern coast, cutting the marine transportation lines which at that time were the Territory's only link with the continental United States.

Safe Route First Need

The Continent's first need was a safe, inland route to Alaska—one which could not be bombed or attacked by ground troops. The Alaska Highway was the answer. But now, with the Japanese driven from Attu and isolated at Kiska, the threat against other parts of Alaska is much more remote. For many months a fleet of towboats has been hauling thousands of tons of road-construction equipment to Haines; this tiny village faces a future which well may see it become one of the most important ports in Alaska.

The idea of the Haines "feeder" road was nothing new when General O'Connor ordered construction to begin. The goldrushers of '98 followed the general route of the projected road when they struggled across Chilkat Pass on their way to the Klondike gold fields; an Army party surveyed the route as a potential railway thoroughfare in 1913. For the past 25 years Alaska's highway engineer, William Hesse, has consistently urged construction of a road from Haines to the interior. Mr. Hesse, who once called construction of the Alaska Highway "pouring money down a rat hole," saw to it that 42 miles of rough road were built and maintained by his Alaska Road Commission in the years before others were ready to utilize the route.

The Haines road also will supplement and to some extent replace the White Pass & Yukon Railway, the Canadian-owned line which toils 110 miles from Skagway, just seven miles north of Haines, across the Coastal Range to Whitehorse. This narrow-gauge railway, now operated by the United States Army, is doing a tremendous job of transporting equipment and supplies to the Alaska Highway, but it cannot come close to answering the ever-increasing tonnage demands. After the war, the Haines road may replace the railway altogether; if not, the road undoubtedly will force a sharp decrease in the freight rates charged by the railway

Alaska Highway Mileage Cut

WHITE HORSE, Y. T., Dec. 21 (AP).—The distance from Dawson Creek, B. C., to Fairbanks, Alaska, on the Alaska highway has been cut from 1,630 to 1,523 miles by cutoffs, fills, tangents and elimination of dangerous curves, Colonel K. B. Bush, chief of staff of the Northwest Service Command, said today. Buses now travel between the two terminals in sixty-six hours elapsed time.

A Seabee bulldozer levels the final section of a two-mile spur road in the Aleutians.

Alaska Road Passes Stiff Winter Test

By Fergus Hoffman

The Christian Science Monitor

WHITEHORSE, Yukon Territory—The Alaska Highway has weathered the weather. Snow, ice, and mud have wreaked their worst havoc against the military road with no more damage than the Army expected. Now the summer sun beats down on the 1,630 miles of historic highway, long, dusty stretches are being graveled, permanent bridges are being installed, grades are being leveled, and dangerous curves are being straightened out. The Alaska Highway is being readied for year-around use as a permanent arterial to the top of the continent.

"The pioneering phase of the project is ended," according to Brig. Gen. James A. O'Connor, head of the Northeast Service Command. "The task now is to improve, maintain, and develop the road. We plan to have an all-year highway, a road which will serve in practically any kind of weather conditions, by November of this year."

Last year, when the Army rushed the road to completion from Dawson Creek, British Columbia, to Fairbanks, Alaska, between March and November, there were many scoffers who said the project would not endure the winter. And the winter, as almost everywhere else, was one of the most severe in history. But after the ice broke up, after the spring freshets swept down from the mountains, the road was still there and in use.

"Right at the peak of the thaw," General O'Connor pointed out, "a convoy of trucks reached Watson Lake in the Rocky Mountains from Dawson Creek. That's a pretty good showing."

Traffic Kept Moving

General O'Connor could have put it in stronger language. There were times in April and May when any kind of travel was difficult along the highway; even jeeps and command cars found the going rough; and trucks had to be nursed down slippery, muddy grades in low gear and sometimes pushed and sweated up long hills by tractors.

River crossings were the bottlenecks along most of the route—surging masses of crumbling ice sheared the underpinnings from the wooden bridges in late April and sudden flash floods washed away other bridges in May and early June. But the engineers kept the traffic moving.

On the Peace River, widest of the numerous streams which the highway crosses, a paddlewheel steamer especially built for the task pushed bargeloads of trucks, road equipment, and light automobiles from bank to bank. At other river crossings, the engineers utilized a favorite Army ferry—planks laid across three or four steel assault boats.

The assault boats, double-ended shells, make excellent pontoons. Powered by huge outboard motors and manned by life-jacketed young troops, the improvised ferries served their purpose well until the bridges could be replaced.

Permanent Steel Spans

The engineers themselves got little rest during the "break-up," the term generally used to describe the entire thaw period. Night and day the troops fought the rivers; often they repaired bridges one day only to see them stripped cleanly away the next day by a sudden surge of grinding ice floes. But the engineers, who pride themselves on being "the toughest outfit on the road," simply rebuilt the bridges and waved the waiting trucks forward.

Many timber bridges, all of which were expected to be lost, have withstood the onslaught of the ice and flood, while others have been strengthened for future use. At other places, ferries still are being used while the main bridges along the road are being reconstructed as permanent, steel spans. Bridge crews are barracked along the highway near the sites where they are erecting suspension-type steel bridges.

The roadbed itself stood up better than the pessimists predicted. There wasn't time last year to build a permanent roadbed with scientifically constructed underbed and top surfacing, nor, for that matter, to install permanent culverts to drain the road. But heavy trucks pounded the road into ruts, sumps, and mudholes in many sections during the winter and the road took the pounding.

Now the contractors have their crews ditching along the sides, dumping gravel along the way, grading and filling. In places where steep grades or poor bottom have become evident, the road is being switched to better ground. No attempt will be made this year to lay an asphalt surface or oil the graveled stretches, General O'Connor said, but a firm, solid gravel road will be constructed.

Pioneering Work Done

Of course anyone who has traveled along the highway will tell you that it's no speedway There are sections where the road is level and drivers can make the 35-mile speed limit hour after hour; there are other places, most of them in areas where construction crews are ripping the road up for repairs or near river crossings, where temporary detours have been built to ferry landings, where low gear and a firm grip on the steering wheel are stern necessities.

Perhaps it is significant that nowhere along the highway do you encounter the usual signs—"Slow—Road Under Construction." It's all under construction, to some extent, and only careful drivers complete the entire trip without at least minor mishaps.

But the pioneering is finished. It may be years before the Alaska Highway is the answer to the tourist's dreams, but even now it is the answer to the Army's dream—a usable military supply route to Alaska.

Final Link Is Opened In Telephone to Alaska

By The Associated Press.

WHITE HORSE, Yukon Territory, Nov. 20—The final link in the 2,026-mile telephone system from Edmonton to Fairbanks, Alaska, has been completed, and for the first time in history overland telephone communication between the United States and its largest territorial possession is possible. Anchorage and White Horse are other key points in the system of installations and bases.

The system was built by the United States Army Signal Corps and civilian contractors, and extends from Edmonton to Fairbanks along the route of the Alaska Highway, then stretches from Fairbanks to Anchorage, paralleling the Alaska Railroad.

Holes for the telephone poles had to be blasted out of frozen ground at 60-below-zero weather.

Alfalfa Grows Even in Alaska

FAIRBANKS, Alaska (AP)—Yellow flowered alfalfa appears to be the answer to establishment of a permanent livestock economy in Alaska, says Don L. Irwin, Matanuska Station agronomist. Experiments showed the plant to be the only legume "winter hardy over long periods whenever tried in Alaska." Experiments with a legume crop have been carried on for several years at both the Matanuska and Fairbanks experimental stations to develop a natural source of nitrate to maintain soil fertility.

Unique Study

Soviet Russia's scientific interests include an Institute for the Study of Frozen Ground.

U. S.-Canada Forces Seized Kiska Aug. 15

WASHINGTON, Aug. 21—American and Canadian troops landed in force on Kiska Island in the Aleutians on Aug. 15, the Navy revealed today, and found that the enemy had fled. Taking advantage of a heavy fog, the Japanese had not left a single soldier to oppose the landing.

The Navy's announcement, released in Washington to coincide with the joint statement issued from Quebec by President Roosevelt and Prime Minister W. L. Mackenzie King of Canada, spelled the end of the Aleutians campaign, which began with the Japanese invasion almost fifteen months ago.

The Aleutians campaign apparently began after the Japanese were thwarted on June 3 and 4, 1942, in their attack against Dutch Harbor.

After the Japanese had been beaten back from Dutch Harbor and companion attacks on Fort Mears and Fort Glenn in Alaska had been repelled, small-scale landings by the Japanese on Attu and Agattu, in the Near Islands group of teh Aleutians, and on Kiska, in the Rat Islands group, were detected. The United States had never garrisoned these rocky, mountainous, fog-bound islands.

They had been deemed of little value to us at that time but, as weather observation posts and as potential bases for Japanese offensive action against Alaska, they became a menace.

On Aug. 30, 1942, the United States started on the road back to repossession of the Aleutians. The Americans moved on to Adak Island and, by using techniques not available to the Japanese, converted it into a menacing air base. On Oct. 3 it was announced that we had occupied further positions in the Andreanof Islands. The Japanese began to get a thorough pounding from the air.

On Jan. 12 we occupied Amchitka Island and set up an air base only seventy air miles from Kiska. The attacks on Attu and Kiska were redoubled in intensity and the Navy began to get in some blows from the sea.

On May 11, 1943, the invasion of Attu was launched. On June 1, after having fought under conditions perhaps as difficult as any that United States troops had ever experienced, Army ground forces stamped out the last organized resistance. All that remained was the pulverization of Kiska, followed by the anti-climactic disappearance of the enemy, as announced today.

WASHINGTON, Aug. 23—United States and Canadian troops, continuing their occupation of Kiska and new positions in the Aleutian Rat Island group, have made an unopposed landing on Segula, a small island twenty miles each of Kiska, the Navy Department announced today.

Segula is a rocky island about five miles square. No Japanese were found there, the Navy communiqué said.

American and Canadian troops occupied Segula Island (cross) without opposition. The circle on the lower panel shows the island's position in the North Pacific.

Emergency Aids Urged For All Flyers in Alaska

Dramatic Report of Crash in Snows Impresses Ickes

WASHINGTON, July 26.—A dramatic description of an airplane crash in the snows of Alaska and the desperate attempts made for survival by its passengers, reported by Dr. Ruth Gruber, field representative of the Department of Interior, led Harold L. Ickes, Secretary of the Interior, to express today the belief that every civilian airplane in Alaska should be required to carry emergency equipment similar to that of Army aircraft.

Mr. Ickes suggested specifically the equipping of all planes in Alaska with two-way portable radio sets, protected in steel boxes; flares, and emergency rations which include dehydrated vegetables.

HUSKIES HAVE GONE TO WAR

Pocono Mountain Dog Team Had Won Many Trophies

HARRISBURG, Pa.—The team of huskies at one of the large hotels in the Pocono Mountains in northeastern Pennsylvania "have gone to war," the State Department of Commerce says.

Those Alaskan and Siberian sled dogs used for racing and winter sports and for passenger rides over the mountain slopes for fifteen years have been enlisted in the United States Army and are stationed at a training center at Camp Rimini, Helena, Mont.

These dogs annually took part in the Pocono Mountains Sled Dog Derbies and the Alden Park Derbies in Philadelphia. In February of 1934 they were sent to do rescue work at Westport, Conn., where they ploughed through snow several feet deep to take food and assistance to thirty-three isolated school children and saved the members of many families who were suffering from lack of fuel and food. The dogs have been winners of a number of trophies and medals.

Soviet Transfer Pilots Open New Alaska Relations Chapter

FAIRBANKS, Alaska, Dec. 10—The coming of Soviet fliers to Fairbanks as transfer point for Lend-Lease airplanes en route to Russia has opened a new chapter in international relations for this Alaskan City.

There have been White Russians working in the mines and managing trading posts, some of them formerly important officials at the Czar's court.

But the advent of fur-clad ferry pilots, many of them in their teens, all of them highly interested in Americans and Americana, has been a new experience.

"We had two of the Russian boys down for a meeting of the Rotary Club," a Fairbanks businessman said. "They acted and looked like Americans, and except for their accent, you'd never have known them from American aviators."

"We can't keep them supplied with candy, gum and knick-knacks," another businessman said. "They come into the stores and buy everything we'll sell them that's small enough to take back over the Bering straits to a land that hasn't time to think about such luxuries."

There have been numerous tales of the daring of these intrepid youths. And in many of these adventures, a spirit of co-operation has been manifested along the Bering coast and on the frozen tundra of Alaska's vast inland.

The Russians operate, as in Persia, from Lend-Lease-built barracks.

While learning American customs and pastimes, the Soviet aviators and aviatrix have taught many young men from Texas, New England and the Midwest to speak Russian. They have shown Fairbanks housewives how to prepare borsch and other dishes that are standard fare from Vladivostok to Leningrad.

Western and Northern Alaska are Russia-conscious. Best example of this is the "platform" flown from the masthead of the Nome Nugget, pioneer Alaskan newspaper.

One of the main planks of the Nugget is: "Improvement of relations with our friends of the Soviet Union."

Post-War Route to Tokyo Is Sought by Air Line

WASHINGTON, Aug. 21—The Northwest Airlines, Inc., filed an application today with the Civil Aeronautics Board for permission to establish a direct commercial air route to Tokyo, via Alaska and the Aleutian Islands. Beyond the Japanese capital, the route would extend to Shanghai and Manila.

The application is part of a plan for post-war operation by which Northwest Airlines would link the United States and the Orient. Kiska, from which the Japanese have just been driven; Attu and Paramushiro, in the Aleutian and Kurile Islands, would be service stops on the proposed route.

The service, according to Croil Hunter, Northwest's president, would pass over neither Canadian nor Russian territory and hence would involve no governmental arrangements with either of these countries.

Indians and Eskimos To Get Army Gifts

SEATTLE, Wash., Dec. 10 (AP)—Three G. I. Santa Clauses flew in from the Northland this week with $1,600 and a knowledge that 130 little Indians and Eskimos can anticipate a merry Christmas.

The three, Sergeant Ralph Chandler, Corporal Tony Kolenic and Capt. John Anderton, are representatives of soldiers at the Fort Richardson Army Air Base in Alaska.

Captain Anderton, who is a chaplain, and the two enlisted men came to Seattle by plane with a list of each child's most desired gift, his or her age, shoe size and clothing size.

Air Line to Cover All Alaska

SEATTLE, Dec. 15 (AP)—Formation of the first commercial air service to cover completely the territory of Alaska was announced last night by R. W. Marshall of New York City, director of Alaska Airlines. The new airline is formed by the consolidation of several individual companies which operated in the territory to form a system covering sixty-three cities in the territory. W. N. Cuddy, president of the First National Bank at Anchorage, is president of the new airlines, with headquarters here.

Daily Air Service to Alaska

Pan American Airways will begin Nov. 18 a daily plane service on the 1,574-mile route between Seattle, Wash., and Fairbanks, Alaska, it was announced yesterday. The trip will take twelve hours and twenty minutes, according to the company, which has been operating a twice-weekly service to Alaska.

30,000 REINDEER SLAIN BY WOLVES

Eskimos Held Indifferent Herdsmen Although Reindeer Supply Their Meat

NOME, Alaska (U.P.)—The great gray timber wolves of the high North are still holding a bloody carnival among Alaska's reindeer herds.

Experienced Alaskan reindeer men agree with Army observers that unless drastic and immediate steps are taken to fully protect the once vast but now pitifully shrunken herds the reindeer industry in the North is doomed.

Last year approximately 30,000 deer were slaughtered by the marauding packs, and it is estimated that this year around 20,000 will be destroyed in the same manner. It is believed that the loss will be lighter this year simply because there now are less deer for the wolves to attack. Some herds have vanished completely and others are badly scattered.

"The 20,000 deer we will lose this year represent 2,000,000 pounds of meat, 20,000 pairs of muclucs and 10,000 parkas," it was stated by one official who has made a study of the reindeer problem.

No Funds for Planes

Sidney J. Rood, reindeer supervisor for the Bureau of Indian Affairs, said his office did not have the money to buy airplanes or to hire hunters for a campaign against the steadily increasing bands of wolves.

"An Army officer in Washington said the Army would be glad to send in slow planes from which to shoot wolves lurking on the flanks of the deer herds," Rood said, "and possibly because of this our appropriation was cut. But if the planes were brought in and any actual wolf-hunting done, I haven't heard about it."

Residents of Nome, appalled by the swiftness with which the reindeer are decreasing under the concentrated assaults of the wolves, said the Alaska Game Commission, which normally is charged with control of predatory animals in the territory, has not succeeded in lessening either the numbers or the activities of the wolf packs.

"The situation is a mess," said one merchant, who has resided in the Nome area for forty years. "The Government bought the deer and gave the greater part of them to the Eskimos in an attempt to establish a stable economy among the natives, but the plan has broken down and nobody has come forward with a better one.

"The Eskimos prefer to live by hunting, fishing, trapping and carving ivory. They don't care for herding reindeer, especially when they can get all the deer they need for their personal needs by simply going out and shooting them. So they abandon the herds, and the wolves move in and destroy them."

High wages paid workers in defense projects in the high North has been another factor in drawing the Eskimos away from their herds, observers state. Eskimo laborers can make as much as $700 a month working for the Government and can make almost as much stevedoring at Nome, whereas the best native reindeer herders are paid is $60 a month, in addition to receiving three reindeer a month. If is, therefore, obvious even to such happy-go-lucky people as the Eskimo tribesmen that in these times reindeer husbandry is not a profitable business by comparison with other fields open to them.

The reindeer ranges in Alaska are approximately equal in size to the State of California, and the total number of deer was about 162,000, according to figures supplied by the Reindeer Service. The appropriation to the Reindeer Service this year was $91,160—less than the value of the deer wolves are expected to kill this year, Alaskans point out.

Rood stated that, in cases where close night and day herding could be maintained, the loss of deer has been substantially reduced, but added that this type of herding had been put into effect only in fifteen instances. On the Bering Sea front alone there are forty-one herds.

One solution suggested by Alaskans was to place a high bounty on timber wolves killed in the reindeer ranges, so that expert hunters and trappers could profitably wage a campaign against the marauders. The present bounty of $50 is not considered high enough, Alaskans state, to devote their full time to wolf-hunting.

Pribilof Sealing Nets Record 117,164 Skins; Kiska Japanese Failed to Halt Resumption

WASHINGTON, Aug. 28 (AP)—Fur-sealing in the Pribilof Islands, carried on secretly within bombing range of the Japanese then on Kiska, resulted in a record-breaking take of 117,164 skins this year.

Secretary of the Interior Harold L. Ickes announced this figure tonight, ending a strict censorship which had been maintained over the resumption of sealing operations halted last year, after only 127 skins were taken, because of a military order to evacuate the islands.

A group of 183 white and native sealers went to the Pribilofs in May and returned when operations ceased on Aug. 9.

Concerned had been felt lest the Japanese wait until the skins were taken, then attempt to raid the Pribilofs and seize the harvest.

The total of skins taken by the 1943 expedition, led by Edward C. Johnston, superintendent of the Pribilofs for the Fish and Wild Life Service, was 22,151 greater than the 1941 take, and larger than any season's kill since the start of government-controlled sealing.

The Pribilof group, in the Bering Sea north of Dutch Harbor, is the only breeding ground of the Alaska fur-seal herd of about 2,300,000 animals, and the only point at which the herd seeks the shore after spending the winter in latitudes as far south as Southern California.

Federal control was undertaken in 1911 to check the steady depletion of the herd by "pelagic sealing", or the killing of seals in the winter. A treaty among the United States, Great Britain, Russia and Japan prohibited such killing under an arrangement whereby the United States controlled all sealing and gave Japan and Canada each 15 per cent of the proceeds. Japan invariably took its share in cash.

The Japanese, however, abrogated the treaty in October, 1941, asserting that seals destroyed the fish in North Pacific waters extensively exploited by Japanese fishermen.

Sealing operations are carried on mainly in June and July, when the "harems" or family groups occupy rookeries in the Pribilofs. The bachelor seals congregate near by, and it is from the latter that the seals are selected for killing.

Since 1918 proceeds have amounted to $8,700,000 for this country alone.

ST. LOUIS, Oct. 18 (AP).—Two months behind schedule and with a seventy-three-year record number of seal skins taken from under the noses of the Japanese, forty St. Louisans were expected home tomorrow from an expedition to the Pribilof Islands, 240 miles north of Dutch Harbor, Alaska.

The group is the first war-time sealing expedition of Fouke Fur Co. Its president, Philip B. Fouke, said the hunters arrived in Seattle Friday with 117,164 seal skins.

The expedition completed its work Aug. 18, but for reasons of security the Navy did not remove the men from the islands until two weeks ago. Their seal hunting accomplished, the St. Louisans, with 143 native sealers and several government employees, were almost isolated from the mainland, and until recent weeks were not permitted to communicate with their families or receive letters.

When the expedition arrived secretly on the Pribilofs last May and began operations its members were within bombing range of the Japanese, who then possessed Kiska Island. Because of the Japanese bombing of Dutch Harbor, no expedition was conducted last year.

The seal skins will be sold at auction next year.

Aleutian Island Raiser of Cattle Reaps Bonanza When Yanks Arrive

KODIAK, Alaska—Although the largest herds of sheep that ranged on the Aleutian Islands have been removed because of the war, Jack McCord, who ranches on Chirikof and Sitkalidad Islands near the larger island of Kodiak, has found the war to be booming his cattle business.

Mr. McCord was specializing in sheep, because of remoteness from markets for dairy products or beef, when war brought thousands of hungry fighting men literally into his back yard. Then he began increasing his sturdy range cattle, the descendants of Shorthorns introduced in the district in 1888, 10 years before the big gold rush to Alaska began.

Two Army authorities recently flew out to check on the cattle for beef purposes and pronounced them first class in all ways. Dr. I. M. C. Anderson said they were the finest range cattle he had seen in all the west.

Mr. McCord, who leased the islands from the Government for 20 years after proving in the first five years that he could produce good wool and wholesome cattle, says he does not need to give his stock winter feed, water, or shelter. The islands are surrounded by salt water, are protected from the wind and produce green grass the year around. Nearness to the sea keeps the climate even—it seldom dips to below 15 or 20 above zero—and regular rains make the grass grow.

The Navy bought $23,000 worth of beef from Mr. McCord last year. This month he flew back from Seattle after agreeing to provide the Army with 300,000 pounds of beef.

Farmers in other Alaskan areas have been writing to Mr. McCord for breeding stock.

Alaska Is Not Teeming With Supply of Big Game

U. S. Wild Life Chief Says War Influx Imperils Animals

Alaska is not teeming with big game, and special efforts are being made to protect the territory's wildlife because of the influx of thousands of residents as a result of the war, Dr. Ira N. Gabrielson, Director of the Fish and Wildlife Service of the Department of the Interior, said recently in an address before the annual meeting of the Audubon Society in New York City.

"Alaska is the last great reservoir of big game in North America under the American flag," Dr. Gabrielson said, "but too many sportsmen have the impression that Alaska is a land teeming with big game."

Fire Razes Old Alaskan Church

KODIAK, Alaska, July 18 (AP)—The famous Russian Orthodox Church of Kodiak, one of the last reminders of the Russian regime in Alaska, was a smoking ruin today, with only the bulbous Byzantine Cross tower still standing after a fire last night. The church was built soon after Russia established the settlement of Kodiak in 1792.

Russia Issues Set of 4 Stamps To Mark Bering Expedition

Sites of Current Arctic Battles Discovered by Danish Explorer Who Sought Link Between Continents 200 Years Ago

By Ernest A. Kehr
New York Herald Tribune

Belated by two years, Russia recently issued a set of four stamps to mark the bicentennial of Vitus Jonassen Bering's expedition to the Kurile and Aleutian Islands, the sites of our current North Pacific campaigns. The set includes four denominations; 30 kopeck, blue, and 1 ruble, green, both depicting Mt. St. Elias, in Alaska, and the St. Peter, Bering's ship, and 60 kopeck, bluish-green, and 2 ruble, brown, both showing a map of the Bering expedition's routes and the St. Paul, the second ship of the expedition.

Bering was born in 1681 at Horsens, in the Jutland section of Denmark, and after joining the Danish Navy, made a trip to the East Indies in 1703. A year later he joined the Russian Navy as a sublieutenant. He rose rapidly, until he became a captain in 1724.

terest in the northern Pacific was almost universal. The Spanish had visited it between 1611 and 1612; the Dutch East Indies Company had sent a ship into the waters in 1639, and in 1648 seven

Two of Russia's belated Bering Commemoratives

trading vessels from Siberia reached what is now known as the Bering Straits.

The reports these ships brought back, that Asia and America probably were connected, encouraged the Russians to believe that their territory might include even North America. Peter the Great, at the suggestion of his geographers, Feodor Luzhin and Ivan Evreinov, ordered Count Apraxin to organize a suitable expediton in 1724 to explore the region and ascertain whether such a link existed between the two continents. Peter died before the arrangements had been completed, but Empress Catherine carried out the plans and appointed Fleet Captain Bering to undertake the mission.

Expedition Started "Blind"

Martin Spanberg, another Dane in the Russian Navy, and Alexie Chirikoff were assigned as lieutenants. They left St. Petersburg on Feb. 5, 1725, proceeded by land across Siberia to Kamchatka, built ships and sailed from the mouth of the Kamchatka River on July 14, 1728.

The expedition started "blind." There were no maps of the area, and the only navigating instruments in existence at the time were the spyglass; the Davis quadrant or "backstaff," a primitive sextant, and an astrolabe. But even with these inadequate aids Bering sailed along the Siberian coast to 67 degrees north latitude to be convinced that America and Asia were not connected. Although he had no definite proof, he decided to return instead of continuing farther north, and reached St. Petersburg on March 1, 1730.

His reports were the subject of numerous controversies, and ultimately regarded as not having answered the question.

A second expedition was planned in 1730-'31, authorized on April 17, 1732, and approved in December of that year.

Bering and his officers and crew left Russia for Okhotsk, where two ships, the St. Peter and the St. Paul, were launched in June, 1740. Each had two masts, brig-rigged and mounted fourteen guns.

Bering was in charge of the St. Peter, and Chirikoff in charge of the St. Paul. Records of the voyages of these vessels consisted of the diary of Bering and Georg Wilhelm Steller, who sailed under Chirikoff. Born in Franconia in 1709, Steller was educated in Germany's leading schools and universities and later became physician to the Archbishop of Novgorod.

The two ships soon separated, and Bering sailed southeast in search of Gamaland, which he failed to find, and almost parallel to the Aleutian Islands, without knowing it. Soon after sighting the St. Elias volcano, in Alaska, he landed, and thus became the first man in contemporary records to discover America from the Pacific side. On the return voyage Bering became ill, and as the ship had lost its bearings, the expedition landed at an island which was named after him. The party passed six months there, and after Bering died in December, 1741, returned to Kamchatka.

Alaska Indians in War Jobs Changes Ways in Reedy Store

The Christian Science Monitor

TANANA, Alaska—Here where the white man's bread costs 40 cents a loaf, via air freight from Fairbanks, the Indians have forsaken their traditional fishing and trapping in favor of wartime occupations which pay $1 an hour—and enable them to patronize Franklin Reedy's general store and his bakery counter.

It's a situation which stirs everyone except the Indians. They think it's wonderful to earn more hard cash than they've ever seen before. Employed as construction laborers on secret war projects scattered throughout the 7,000 square miles of the Tanana Valley, the Indian tribes of the region are enjoying a prosperity comparable to anything in the booming cities of the continental United States.

Old Ways Paid Well

But Mr. Reedy doesn't think too much of all this new money. For years he and the company he represents have traded with the native people, taking their beaver, muskrat and fox pelts in exchange for staple goods, clothing, trapping equipment and ammunition. The system has paid dividends both to the company and the Indians, who until the present war, had no means of livelihood except their trap lines. In lean years, winters when the wolf packs increased and marketable fur was scarce, the company always carried the Indians on credit accounts—sometimes 200 or 300 family heads drawing provisions from a single store throughout an entire year without payment.

Nor does Mr. Reedy begrudge his native charges their present financial fortune. He only is concerned about the future, foreseeing the day when the Federal Government's tremendous expenditures for "build-at-any-cost" defense projects will cease. His attitude is shared by Alaska territorial officials and the teachers and managers of the Alaska Indian Service.

Most important to the white people of this community is the change the war is working in the Indians' diet; hitherto the teeming Yukon and Tanana Rivers have provided tons of fish for both the Indians and their valued sled dogs. This summer saw less fish caught and dried than ever before in the history of the village. The less fish the natives store away, the more dependent they will be this coming winter upon Mr. Reedy's stocks and the stocks of the other white traders in the 300-mile long valley.

No Time for Fishing

But the Indians haven't had time to go fishing. This coming winter they won't have time to run their trap lines across the snow-covered tundra. The white merchants will profit, of course, but it is a profit in which they take no joy because their entire policy has been one of conservation, utilization of local resources and education of the Indians. Under the direction of Claude Hirst, head of the Indian Service, an intensive training program has been carried on among the Indians by trained educators. Such textbooks as the one entitled, "How to Skin a Fox," became best sellers among the Indians as they absorbed more and more hints from the white man on how to improve their living conditions and increase their annual income.

Now, however, the Indians don't care about skinning foxes. Not when they can get $1 an hour for skinning the muskeg from potential airfields with a pick and shovel. Never before have entire tribes been employed on mass projects—and never before have the white men, charged with the responsibility of providing for thousands of child-like charges, been so apprehensive of the future. The aftermath of the war already constitutes a problem which may have only the gravest effect upon Alaska's Indians.

ALASKAN SHARK FOR MENU

Company to Be Formed to Net 1,000,000 Pounds a Month

KETCHIKAN, Alaska, Aug. 15—Charles C. Dawe of the Alaska Fish Oil Extractors Company, Chicago, has decided to form a subsidiary to be called the Alaska Fish Company to deal in Alaskan shark meat for table use.

As a result of a meeting held by business and professional men at the Federal Fish Laboratory several species of prepared fish were served and eaten without being marked. The unanimous verdict was in favor of cooked shark meat as food.

Shark is an all-year fish, and Mr. Dawe expects to market 1,000,000 pounds a month.

Son to Peary Descendant

Daughter of Discoverer of North Pole Now a Grandmother

BENNINGTON, Vt., Aug. 4 (AP).—The birth of a son, Edward Peary Stafford jr., to Lieutenant (J. G.) E. P. Stafford and Mrs. Stafford in an Albany hospital yesterday brought a grandson to Marie Ahnighito Peary Stafford, the famous "show baby" daughter of Rear Admiral Robert E. Peary, discoverer of the North Pole.

The mother is the former Marie Dolores Harte, of Bennington. The baby's grandmother, whose middle name, Ahnighito, is an Eskimo word meaning "show baby," was born far north of the Arctic Circle at Anniversary Lodge, on Bowdoin Bay, during one of the exploration trips of the then Commodore Peary, preceding his discovery of the North Pole.

Underwriters Puzzle Over Ship Officially 'Lost,' but in Service

Vessel Was Trapped in Ice So Hopelessly That Claim Was Paid and Her Return Creates Odd Problems

Now that it is long in the past—at least long as one counts the events of war—the story may be told of the little ship which, written off as a complete loss nearly a year ago after grounding in the icy waters of a distant river, came floating free months later in almost perfect condition, thereby creating a perplexing situation said to be without precedent in insurance annals.

Shipping officials operating her were surprised, as were the authorities of the War Shipping Administration and the insurance underwriters concerned in the risk, for all expert opinion had it that the ship was beyond rescue. She was inaccessible, in sub-arctic temperatures, hard aground in a spot where a few weeks later, the river would freeze over until the Spring—when, by all the laws of nature and all the habit of the past, huge masses of ice would come roaring down to crush the ship and her cargo into pulp.

"We'll have to wait until Spring," someone said, but rivermen and trappers in the region laughed. "You can just forget about it," they said, "because after the Spring thaw there won't be enough for her left to fill a muskrat hole."

Salvors and other experts readily agreed, for that part of the river was notorious, and the opinion was so overwhelming that the underwriters agreed to a declaration of "constructive total loss." The steamship was abandoned.

But something in the nature of a miracle occurred. Whether it was a record high-temperature winter or the way the river contrarily flouted opinion and precedent is not disclosed in reports that came in to the WSA in Washington. In any case the ice did not destroy the ship and she was somehow gently pushed free. It was impossible, but it had happened.

A crew was placed aboard in the river and the vessel was returned to service—truly a ghost ship, since no one owned her, she was legally destroyed, claims on her insurance had been allowed and in every sense acceptable to the men who write and understand insurance policies she did not exist. No one knew how to "uncondemn" a ship, and there were no rules in the book for a craft that had unaccountably returned from that underwriter's limbo known as "constructive total loss."

Practical seafarers brought her back to the United States late last summer and she became the center of a lively controversy marked by memoranda, conferences, letters and study as a unique case. Pending settlement, the "lost ship" has returned to duty in the war trades.

ARMY TRANSFORMS ALASKAN OUTPOSTS

Barren Life Made Bright by Use of Movies, Radio and Newspapers

North American Newspaper Alliance.

HEADQUARTERS OF THE ALASKA DEFENSE COMMAND, July 24—The present program of "civilizing" our Far North outposts contrasts strikingly with the situation of the troops who were rushed to a new campsite near Nome, in the early days of the war.

With little opportunity for advance preparation, the men piled off transports to face a bare campsite and a long, bitter winter of digging in.

With an eye to the morale of his troops, Gen. Simon Bolivar Buckner, head of the Alaska Defense Command, began a vigorous campaign of carrying civilization through a program of special service activities to lonely outposts scattered from the Arctic to the Aleutians.

The program, under Lieut. Col. John T. Carlton, formerly a newspaper man of Atlanta, Ga., has transformed Army life in Alaska, and, in some ways, transformed Alaska, too.

Radio stations are part of the story. There are radio stations today at nearly every important base in Alaska. There are tiny stations, with only 25 or 50 watts of power which is usually further reduced to avoid the slightest possibility that Japanese planes or submarines might use their broadcasts as a guiding beam.

But their size doesn't keep them from having the same programs that go out of the largest stations in the United States. Some of their programs are rebroadcasts picked up from the shortwave broadcasts of KGEI and KWID in San Francisco. Others are recordings made by the Office of War Information from network shows.

Stations have already been established at ADAK, Dutch Harbor, Kodiak, Seward, Sitka, Nome and Cold Bay, and five more are scheduled for installation in the near future. One of these will be on Attu.

The movies, naturally, are the old reliable of all entertainment, and the Special Services branch has just announced a stepping up of its movie program which will send 35-millimeter films to every post in Alaska which has a post theatre.

But to the boys in the outposts, the lonely spots deep in the forests or on unnamed barren islands, it is the 16-millimeter films, distributed by the Special Services branch as a gift from the film industry, that bring two hours of escape from war and its tedium.

Newspapers, ranging from the mimeographed Attu Dingbat to such full-blown products as The Kodiak Bear and The Ladd Field Midnight Sun, have sprouted throughout Alaska so rapidly that they now have their own Army-run syndicate, a weekly clip sheet which contains art work, Army news, cartoons, filler material, and a comic strip, for the use of hard-pressed editors, and a daily news service which distributes a summary of the latest news to each camp by radio. In at least one Alaska city the camp paper serves the whole city as its only newspaper.

Frozen Home for Airmen in Alaska

United States Navy

A lone flyer crosses the snow to his hut after a three-day blizzard left only the roofs showing at a naval aviation base in Alaska

Trailer Store on Rails Does Big Business Along the Alaska Road's 500 Miles

ON THE TRAVELING PX, Alaska Railroad, July 24 (AP)—Sergeant Klos has just sold to about eighty customers $400 worth of candy, cigarettes and hair tonic in twenty minutes. This is an average piece of business for Tech. Sgt. George E. Klos of St. Paul and his traveling store.

The sergeant is buyer, manager and chief clerk of this store, which is nothing more than a trailer mounted on rubber-tired wheels with flanges to keep them on the tracks of the Alaska Railroad, over which it is pulled by a truck motor unit. But for several hundred men up and down the 500 miles of track which connect the interior of Alaska with the sea, his store is the only place where they can spend money.

The sergeant and his helpers, Corp. Warren C. Harding of Baltimore and Pvt. Merle Hill of Cozad, Neb., believe their store on wheels is the only one of its kind in the world. They further think they do a higher per capita business with their limited stock of sweets, tobaccos, shaving creams, toothpaste and writing paper than any other PX in business.

The PX car moves along the twisting railroad at a neat twenty-five miles an hour and stops everywhere that a soldier member of the railroad unit may be.

In addition to the crew, the car usually carries at least one officer on inspection and a medical officer to attend the ailing.

A typical stop for the car is a gravel pit outside Grandview, which is enjoying a boom because of the presence of a steam shovel and a work train. The men rushed for the car, letting the gravel digging go. In the twenty minutes the car was here an Army doctor gave every man a medical inspection and Sergeant Klos sold whatever was wanted. Mostly the men wanted all the candy and cigarettes they could carry.

"There isn't any way to figure the average business," Sergeant Klos says. "They'll buy all I have and anything I can get. The only problem is how much I can carry."

SPITSBERGEN STORY OF CONQUEST TOLD

Recent Nazi Attack on Arctic Outpost Leads Norwegians to Relate Saga

LONDON, Sept. 12—The dramatic story of how the Spitsbergen Archipelago, only 500 miles from the North Pole, had been garrisoned by a small force of not more than 100 Norwegians since last summer, was told today by Norwegian Government officials in London.

It was a detailed account, released in connection with the present plight of the garrison that on Wednesday flashed a signal saying it was being attacked by a large German naval expedition. Since that signal was received, no further word has been received regarding the fate of the Norwegians who re-established Norwegian sovereignty over the Archipelago last year.

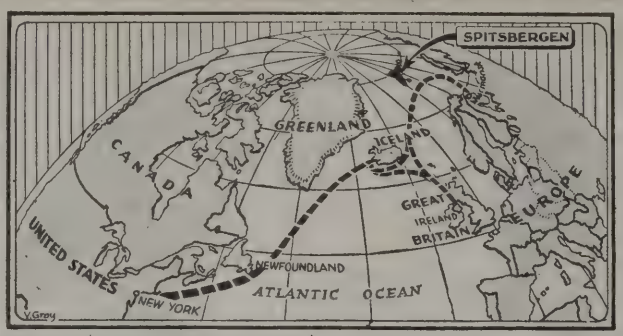
The story begins in September, 1941, when the Allies landed on Spitsbergen and destroyed meteorological stations, coal mines and other installations and evacuated the Norwegian and Russian population.

Toward the end of September, however, the Germans moved in, sending an expeditionary force, which built an airbase there and garrisoned it.

In May of last year a Norwegian force of eighty-two men was sent to Spitsbergen aboard an icebreaker and a fishing vessel to try to retake the territory from the enemy. The expedition arrived at Cape Linne on May 13, 1942, only to be discovered by a German reconnaissance plane, with the result that the two vessels were subsequently attacked by four enemy planes. One vessel was sunk and the other set afire. Twelve Norwegians were killed and others injured.

In sub-freezing temperatures the survivors made their way ashore over ice-covered water. Carrying their wounded with them, the Norwegians reached Barentsburg, where searching parties found clothing and large quantities of food in an abandoned Russian mining town. The next day German bombers flew over Barentsburg and, spotting tracks in the snow, raked the community with cannon and machine-gun fire. For days Barentsburg was visited by enemy planes.

Then, when the situation looked absolutely hopeless, an RAF Coastal Command Catalina plane appeared on the scene and the Norwegians flashed an SOS with a signaling lamp. The RAF fliers dropped a note asking them what they needed. They got their answer by lamp signals.



On the first day in June another British Catalina landed on the fjord, took off seven badly wounded Norwegians and brought them to safety. The next day a British naval detachment arrived at Barentsburg and landed another Norwegian force.

Meanwhile, small Norwegian reconnaissance patrols had located the main German garrison at Longyear City, but these patrols were so ill armed that they could not attack. They left so many ski tracks in the snow, however, that enemy scouts must have been hoodwinked into believnig that the number of Norwegians on the island was much greater than actually the case.

Gradually, enemy activity petered out. A reinforced and rearmed Norwegian expedition of about 100 descended on Longyear City on July 14, 1942, and discovered that the Germans had evacuated. The Norwegians had remained on Spitsbergen since then.

LONDON, Sept. 10—Heavy units of the German fleet made a showy but indecisive raid on the Arctic island of Spitsbergen Wednesday morning and then raced for the shelter of the Norwegian fjords, menaced by the avenging silhouettes of the British Home Fleet and American units cooperating with it.

This formidable force arrived off the bleak island at dawn Wednesday, but about 100 men of the Norwegian forces put up a prolonged and skillful resistance against overwhelming odds.

The hundred Norwegians who worked the meteorological station on the island manned three four-inch guns and machine guns against the German squadron with such effect that the Germans reported a "heavy artillery defense."

The enemy communiqué, so similar to those in which the British magnified the first Commando raids in 1941, then reported that the meteorological station, port loading installations, coal mines and coal dumps had been blown up or set afire.

German grenadiers who landed to do the job suffered considerable losses at the hands of the garrison, some of whom were taken prisoner, according to the enemy.

Then the German fleet, always menaced by the superior forces of the Allied navies, withdrew swiftly.

The Spitsbergen archipelago first entered this war on Aug. 25, 1941, when Canadian troops, escorted by the Royal Navy, landed there and blew up the wireless station, destroyed the coal mine, set fire to 450,000 tons of coal, 275,000 gallons of fuel oil, gasoline and grease. Norwegian and Russian workers then were evacuated.

RAIDED SPITSBERGEN ARCTIC KEY POSITION

Rich Mineral Deposits Made Islands Valuable to Norway

Spitsbergen, recently raided by a German naval force, is more than 1,800 and 2,400 miles, respectively, from the main European fronts in Russia and Italy.

Norway's Spitsbergen Islands (known officially as Svalbard) are at the "top of the world," less than 700 miles from the North Pole, says the National Geographic Society. The bulk of the group is about 425 miles north of Norway, at latitudes considerably north of both Iceland and Alaska.

The German raid, like the Allied occupation in 1941, had to be accomplished during the brief open season before winter set in. Traffic usually is possible only from July to September.

Spitsbergen is five large islands and a number of rocky, barren islets. Their combined area is more than 24,000 square miles, about equal to that of West Virginia. The inhospitable northern islands, however, supported a pre-war population of little more than 2,000—or roughly one person to every thousand in West Virginia.

To the holding power Spitsbergen is valuable for material resources as well as its key position in the Arctic. The islands hold extensive coal reserves, estimated at figures up to 8,000,000,000 tons. There are also a number of other rich, although so far undeveloped, mineral deposits, including iron, copper and zinc. Before the war Spitsbergen had half a dozen mining camps that operated during the entire year. Coal was stored up for the summer shipping season. Coal exports totaled well over half a million tons annually.

International rivalry for Spitsbergen—stimulated in early days by the valuable whaling fields near by, and later by the discoveries of the coal wealth—has often been acute. Norway's claim to the islands was finally recognized by treaty in 1920. The Scandinavian country took over officially five years later. From time to time Spitzbergen has served as a base for scientific and exploration parties working in the Arctic.

1,000-Mile Pipe Line In Alaska Is Revealed

Carries Gasoline for U. S. and Canadian Air Bases

FAIRBANKS, Alaska, Sept. 26 (UP).—The existence of a gasoline-distribution pipeline stretching for 1,000 miles from Skagway in southeastern Alaska, to Fairbanks, deep in the interior, and supplying American airbases in Canada and Alaska was revealed officially for the first time today.

The line extends from Skagway through Whitehorse, Yukon Territory, and thence to Fairbanks. It was built by United States Army engineers last year and has been in use since January. The Standard Oil Company of Alaska recently was formed here to distribute the gasoline and operate the system for the Army on the basis of one dollar a year plus costs.

The project removes a burden from the Alaska railroad, which formerly carried all gasoline to Fairbanks, and it makes possible shorter, safer hauls for tankers from the United States, as the sea route to Skagway is largely through the well-protected water of the inside passage.

The pipeline system is now taking the place of the unfinished Norman Wells project and later will supplement it.

BUSES RUN TO FAIRBANKS

Army Extends Service on New Alaskan Highway

WHITEHORSE, Yukon Territory, Nov. 13 (AP)—The farthest north through-bus service in the world was put in operation this week, as buses chartered by the American Army began rolling into Fairbanks on the Alaska highway.

For the last three months the buses have been plying between Dawson Creek, British Columbia, the southern terminus of the international road, and Whitehorse, in the Yukon Territory. This stretch covers about 1,000 miles. Whitehorse is the main base and the headquarters of Brig Gen. James A. O'Connor's Northwest Service Command.

This week the bus service was extended on to Fairbanks, lengthening the total trip to 1,630 miles.

Travel on the Alaska highway buses is confined to military personnel, civilian construction workers and others associated with the war effort.

Lichen Turned Into Sugar

LONDON, Dec. 28 (U.P)—The Soviet War News reported today that Andrei Kursanov, in a demonstration before the Russian Institute of Bio-Chemistry, had shown "polar sugar" produced from lichen, which covers a vast barren space of Northern Russia. Mr. Kursanov was quoted as saying that the lichen had been converted into 100 per cent molasses and then into crystalline glucose.

SECRET NAZI BASE IN ARCTIC ERASED

U. S. Planes and Coast Guard Discover and Destroy Radio Station Off Greenland

WASHINGTON, Nov. 9 — The story of how United States Army planes and Coast Guard cutters scoured hundreds of miles of frozen Arctic wasteland to hunt out and destroy a secret radio and weather base established on a remote island off Greenland by a small Nazi landing party known as the "German Greenland Expedition" was revealed today by the Navy.

While a small-scale action, the Greenland mission, involving extreme hardships on the part of the American expedition, was one of the unique stories of the war. It also highlighted the importance of that little-mentioned area as an observation post for German air activities, and suggested the possibility that the Nazis may pay further attention to our northern outpost.

Today's announcement by the Navy was the first disclosure of the Greenland affair, although the secret base had been discovered early in 1943, was bombed in May by Army Air Force planes under command of the noted flier Col. Bernt Balchen and finally was wiped out by a Coast Guard-Army expedition in September. The Germans had evacuated before the expedition arrived and only two prisoners—one captured in an earlier phase and the other a lost Nazi technician who stumbled into the hands of the Americans—were taken.

Sledge Patrol Finds Base

The base, established on an island situated off an uninhabited portion of the east coast of Greenland by "a small force of the German Navy," was discovered by the United States Army sledge patrol. This group, made up of Danish hunters who constantly patrol the frozen wastes, was organized for the Army in the summer of 1941 by Rear Admiral Ed H. Smith, USCG, of Winchester, Mass. The admiral, known to his colleagues as "Iceberg" Smith, now is commander of the Greenland naval patrol.

"Small, but of solid construction, indicating a plan to remain permanently," the Navy announcement related, "the base included a radio station, power house, emergency generator and radio transmitter, separately located, defensive machine-gun emplacements and food caches. A small supply ship anchored in the harbor had telephone communication with all principal shore points."

There was a fight when the Danes discovered the Nazi base. Two of the Danes were taken prisoner. A third, Eli Knudsen, was shot and killed. Survivors, however, managed to report the discovery.

Then the Nazis sent a force out to attack a small hunting and weather station well above the Arctic Circle, manned only "by a handful of Danes armed with hunting rifles and some pistols." The Germans attacked with machine guns under cover of the long winter night, but most of the Danes escaped.

Dane Outwits German

Later, the lieutenant in charge of the "German Greenland Expedition" made the mistake of wheedling one of the Danish prisoners into "collaborating" on an expedition of the barren Greenland coast. They set off together, but the Dane, at the first opportunity, overpowered the Nazi and delivered him to Americans. It took a forty-day sledge trip for him to bring in his prisoner.

Colonel Balchen's planes visited the base in May. Their attack was so accurate that when the Coast Guard cutters arrived months later it was learned that the supply ship and all the main buildings, except a small generator shack, had been destroyed.

Meanwhile, Admiral Smith sent two cutters, the Northland and the North Star, bearing Army troops and Coast Guardsmen, into the Greenland Sea to wipe out the base. Capt. Carl C. Von Paulsen of Cambridge, Mass., commanded the expedition. The North Star ran afoul a heavy ice pack and was "hopelessly jammed" for more than a month, but the Northland broke through the ice and reached the base.

Find Base Deserted

The Americans landed on the icy shore, but found nothing but desolation, and no Germans were there.

"It is believed that those not killed by the aerial attacks had been evacuated, perhaps by transport plane," the Navy surmised.

Several days after the Americans arrived, a German technician came plodding into the base. He had been back to the spot where the Nazis killed Eli Knudsen. He had lost his sledge and sled dogs through the ice and had subsisted alone in the barren wastes until the ice broke sufficiently so he could row back along the shore in a skiff.

"The entire area was searched carefully but no other German installations were found," the Navy reported, adding that it believed the purpose of the German Greenland Expedition was to "provide regular weather information for the German Air Forces."

That the area is not entirely clear of German activities was suggested by the report that the cutters brought back, after having completed their mission. On three occasions they encountered German reconnaissance planes. Twice the cutters engaged them, and one plane was believed to have been damaged.

Capt. Carl C. Von Paulsen, Coast Guard, commander of the Atlantic Fleet task force unit that "eliminated" the German radio and weather station on Greenland, declared Nov. 27 that the Nazis had chosen the "most bearable and livable area in Greenland" for their base, and that the installations there indicated they had planned to stay for a long time.

In an interview at the Coast Guard headquarters, 42 Broadway, Captain Von Paulsen told how his unit of two modern cutters, the North Star and Northland, with special equipment for operating in ice-filled waters, had taken twenty days to plow through ice packs to reach the station's area. He said damage to the North Star forced her withdrawal and the Northland bucked the ice for a week more to reach the goal.

Asked about his ship getting stuck in the ice and the proper procedure for freeing it, he said:

"Well, you keep going into an ice pack until you get stuck, then you sit by calmly and wait for an act of God, such as tide changes or winds, to shift the ice and free you."

The captain has nearly thirty-four years' service in the Coast Guard, and was one of its pioneer fliers. He spent many years on the International Ice Patrol and in the Bering Sea.

A NAZI WEATHER AND RADIO STATION IS SILENCED

Coast Guardsmen and soldiers examining equipment on the shore of an island off Greenland

The Polar Times

Published June and December by the AMERICAN POLAR SOCIETY, Care American Museum of Natural History, Central Park West at 77th Street, New York, N. Y.

AUGUST HOWARD, Editor

THE POLAR TIMES highly recommends "The Polar Record," published January and July by the Scott Polar Research Institute, Cambridge, England.

The American Polar Society was founded Nov. 29, 1934, to band together all persons interested in polar exploration. Membership dues are one dollar a year, which entitles members to receive THE POLAR TIMES twice a year.

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Heroic Voyage Took Supplies To Arctic Base

Alcoa Scout's Ex-Skipper Tells How 4 Little Ships Braved Storms; One Lost

The merchant marine's most implacable enemy, the weather, is far from conquered, it was revealed Dec. 4 in a report by Captain Charles Bushnell Dunn, former master of the cargo vessel Alcoa Scout. Describing a trip last winter to three of the Army's most distant airplane outposts in the polar regions, Captain Dunn maintained that rough weather proved a fiercer foe than enemy submarines or bombers.

The Alcoa Scout, under Captain Dunn, was one of four small cargo vessels which sailed late in November, 1942, for the outposts with supplies. None of the vessels encountered enemy resistance during the two-month voyage, but one was lost after striking a rock in a storm and the other three reached home ports badly damaged and heavily encrusted by tons of ice that constantly threatened to swamp them. The Alcoa Scout was so battered and twisted that it required a month to make the vessel fit for sea again.

Captain Dunn and most of the crew which took part in the polar adventure are now at sea in other ships. But the captain's report, made public at the offices of the Alcoa Steamship Company, 17 Battery Place, tells the story in colorful detail. Censorship restrictions, preventing publication of material that might give comfort to the enemy, prevented earlier release of the story.

The ships sailed from Newfoundland with none of the preparations that usually are made for an Arctic voyage. An urgent request for supplies had brought the order for the voyage. After passing the bleak shores of Labrador, the ships entered Davis Strait with the grim prospect of being caught until spring in a frozen sea. Only sketchy charts guided the skippers on their course.

The ships plowed through 120-mile-an-hour winds, while the thermometers dropped to 40 degrees below zero. Icebergs, towering hundreds of feet above the ships, slipped silently past.

Far above the Arctic Circle, Captain Dunn discovered that his compass was no longer reliable because of the proximity of the Magnetic Pole. Radioing to a Coast Guard base for directions, he was told that their own compasses were hopelessly inaccurate, too.

"We just moved ahead," he said. Occasionally I would see what I thought was an inlet or channel, but when I crept into it for shelter, I would find it an unnavigable fjord. After eighteen days of indescribable fury the storm abated and through rifts in the clouds I saw the North Star and was able to set a course."

The ship reached the three bases by pushing through endless ice floes. Captain Dunn described the farthermost base in these words:

"We were puzzled to know how anything human could support life amid such forbidding surroundings. There is apparently no soil, but under the snow grows a kind of peat moss, called 'thunder grass.' We saw no birds of any kind. Early in our trip we had seen some seals, but that was many days before. Here, the Army men told us, were only savage wolves, Arctic fox and, according to the Esquimaux, reindeer. . . . All I can say is that words just cannot convey the feeling of admiration we all felt for those soldiers who are carrying on in what I call a perfect hell on earth."

But the worst of the trip was to come. With steampipes bursting because of the intense cold and ice piling rapidly on the deck, the ship steamed back past Labrador into the wildest storm in the captain's experience. Another convoy which the Alcoa Scout joined as it passed the Arctic Circle lost 40 per cent of its ships in the storm, Captain Dunn reported. Men who took to lifeboats froze to death at their oars within a few minutes, he said.

Then a member of the crew reported that the holds of the Alcoa Scout were rapidly filling. The cold made the lines to the pumps almost impossible to keep sound, Captain Dunn said, describing the engineers as "magicians" for keeping the pumps working at all.

United States Coast Guard Photo

Proud Pup

A young husky meditatively sniffs the cool Arctic breeze as he serenely surveys his Coast Guard outpost in the Far North.

Seven Soldiers Battled Storms 9 Months on Greenland Icecap

WASHINGTON, July 10 (AP)—Back from nine months on a Greenland icecap where they maintained a weather station, seven Army men told yesterday of Arctic storms so furious that they had to tie themselves together to avoid being swept away.

"At times the wind blew at 170 miles an hour," said Lt. Randolph P. Eddy, Boston, commanding officer of the group. "For long stretches every few hours we had to go out and shovel snow away from the tents to keep from being buried alive."

The detachment had two chances to aid crews of planes forced down on Greenland. Once Lt. Eddy said, his men fought their way through snow and ice to within 11 miles of a crashed plane, then were blocked by deep crevasses. The plane's crew subsequently was rescued by other flyers.

"The second effort," Lt. Eddy reported, "proved useless because the entire crew had been killed."

All but seven of the 30 sled dogs placed on the ice cap with the weather crew were lost or frozen to death during the lonely assignment in which the only entertainment was provided by War Department radio broadcasts.

"Word came, finally," Lt. Eddy continued, "that our entire outfit was to be evacuated by plane. When the plane finally arrived the ice was very thick, and we advised the pilot not to try to land in the water.

"That seemed funny—after nine months—refusing to leave the cap. The pilot merely replied: 'Keep your shirts on. I'm coming down.' He made it okay."

While its landing force of Coast Guardsmen and soldiers advances on a powerful German radio and weather base on an island off the coast of Greenland, a U. S. Coast Guard cutter waits off shore. A second cutter taking part in the combined operations was jammed in the heavy ice pack before reaching the scene and was locked in the ice for almost a month. The base was destroyed and two prisoners were taken.

Photo from Coast Guard.

Soldiers Made Cold-Proof for Arctic Air Route

Learn in Rockies How to Man Greenland Aerial Highway to War Fronts

DENVER, Dec. 16 (AP).—Cold-proof soldiers of the Army Air Forces are learning to survive lonely vigil in the far-below-zero temperatures and knifing gales of the Arctic, to man the growing Greenland aerial highway to battle areas.

The Arctic offers the shortest route from the production line to the fighting line. Warplanes are soaring over the top of the world in swelling numbers. The chill skyway calls for a ground corps of men skilled in Arctic weather observation, supply, transportation and rescue work.

Carefully screened personnel for this rigorous job is being conditioned by the A. A. F. training command at its new Arctic camp on the shores of Echo Lake, high in the Rocky Mountains thirty-five miles west of Denver. The Army picked the site because its climate and terrain closely resembles that of the sub-polar regions. The project is conducted by Buckley Field, Denver.

The Arctic camp commander is Captain C. A. K. Innes-Taylor, Canadian veteran of two Byrd Antarctic expeditions and former Royal Canadian mounted police officer with years of experience in the Arctic, Alaska, the Yukon, Greenland and New Zealand.

Civilian on Staff

Camp instructors are young Army men who have lived in the northern outdoors most of their lives—plus a civilian, Belmore Browne, artist, writer, hunter, woodsman and twenty years a teepee resident of Alaska, the sub-Arctic and the Arctic.

They teach parka-wrapped soldiers to ferret food from frozen land and ice-covered green waters, and to make shelter from materials at hand.

The soldiers learn to handle dog teams and snow vehicles, use skis and snowshoes, wear clothing properly and prepare dehydrated foods.

When they get to Alaska they'll know how to build a bough shelter as warm as a farmhouse kitchen. When they reach the ice cap they'll be able to make a four-man snowhouse in less than an hour which they can warm to 60 degrees when the reading outside is 70 below.

The first week of training camp life is spent in class work, the next four or five in the mountain snows—and the trainees rarely see the base camp again until they come in and pack up for the northland.

Most worked-at problem is finding and rescuing a plane crew, theoretically down, lost and helpless in the Arctic. A scout plane spots the airmen and messages the location. By ground navigation with a compass a rescue crew locates the fliers, gives first aid and transports them to an Arctic base camp.

For newspaper men, the Echo Lake trainees this week demonstrated a rescue mission. A crew located a theoretically injured airman in rocks and trees just below timberline, strapped him to a stretcher improvised of small tree poles, lowered him down a guy line from the brink of a granite cliff to frozen Echo Lake, loaded him on a dog sled, sped him across ice to an Arctic tent for first aid and food, and placed him in a covered tow-sled behind a speedy tractor-type snow vehicle that roared off through forests to a base camp.

Arctic army weather observers practice anchoring meteorological instruments in ice, snow and rocks at Echo Lake.

The aircraft maintenance phase is taught air force mechanics at Buckley Field.

A Touch of the Arctic in the Rockies

Soldiers of the Army Air Forces being trained at E cho Lake, Colorado, learn to build a snow house

ESKIMO TYPE SLEDS FOR ALASKA SOLDIERS

Three Kinds Being Turned Out by Pennsylvania Firm

HARRISBURG—A unique Pennsylvania industry, the only one of its kind in the United States, is producing authentic Eskimo-type sleds for Uncle Sam's fighting forces in the Arctic, the State Department of Commerce disclosed today.

The plant is in Scranton and is operated by the Phenol Products Company. The sleds they are manufacturing will carry American soldiers, their food, munitions and other equipment over the Arctic waste lands.

Three types of sleds are being produced. One is a big Nansen-type freight sled which weighs only 123 pounds but can haul 700 to 1,000 pounds of ammunition or other supplies. The others are basket-type Nome sleds, one weighing 100 pounds and the other 60 pounds. The lighter sled is used for messenger transportation between Army field headquarters and fighting units. They can be pressed into service in an emergency for carrying wounded men.

The messenger sleds are hauled by a nine-dog team while the large freighters can be used in a sled-train pulled by dog, man, or mechanized power. Each sled has a powerful snow brake which is operated by the driver of the dog team.

NEW ANTARCTICA MAP ISSUED BY THE NAVY

Is Result of Data Compiled Over Several Years

WASHINGTON (U.P.) — A new chart of Antarctica and the southern polar regions, in preparation several years, has been issued by the hydrographic office of the Navy Department.

Combining all published information and much data of the area never before seen on a map, some of it collected by the United States Antarctic Service under Rear Admiral Richard E. Byrd, the map's creation was supervised by Comdr. R. A. J. English, who commanded the polar survey ship The Bear on Byrd's second trip to the region.

Antarctica is almost entirely within the Antarctic Circle. It has an area of nearly 6,000,000 square miles, almost equal to the combined areas of the United States and Europe. Its coastline of 14,000 miles is almost completely known, but by far the greater part of Antarctica has never been seen by a human. Unknown coastal sections include the southwestern limits of the Weddell Sea and a portion of the coast of the Roosevelt Sea.

One mountain is named for Secretary of the Interior Harold L. Ickes, and a tremendous glacier has the name of Cordell Hull, Secretary of State.

The chart also gives oceanic depths to 5,500 fathoms.

Details for the map were supplied by the United States, and ships of Britain, France, Australia, New Zealand, Germany and Norway.

Byrd Expedition Dog Dies

ERIE, Pa. (U.P.)—Balou, the 12-year-old malamute dog with Boy Scout Paul Siple and Admiral Richard Evelyn Byrd in the Antarctic from 1933 to 1935, died here on the fifteenth anniversary of the sailing of the first Byrd expedition in 1928. Balou, living here with Siple's parents for eight years, suffered infirmities of old age.

YUKON OIL REFINERY OURS FOR DURATION

Canada Waives Other Rights in 'Canol' Project—Wells Yield 3,000 Barrels Daily

By P. J. PHILIP

OTTAWA, Nov. 19—The extent to which the "Canol" project in the Northwest Territories is operating and the terms of the agreement made between the United States and Canadian Governments to assure a constant supply of oil for the American forces in Alaska and regarding the disposal of the properties after the war were made public here today with the consent of the United States War Department.

Hitherto the department had considered that these results and agreements should be kept secret for security reasons.

The output of a total of twenty-seven producing wells in the Norman field district of the Mackenzie River was established last July at 3,000 barrels daily and the potential production has considerably expanded since them. Most of these wells were drilled by the Imperial Oil Company under contract with the United States Government.

The project, as agreed to in an exchange of letters dated June 27 and 29 and Aug. 14. 1942, in addition to the drilling of sufficient wells to assure the delivery of 3,000 barrels daily for a year, called for the establishment at Whitehorse of facilities for refining the crude oil; for the storage of all gasoline produced by the refinery at Norman wells during the operating season of 1942 for the future use of the United States Army; for the construction and maintenance of a pipeline to Whitehorse, and for the construction of a pipeline from Skagway to Whitehorse, with storage and landing facilities at Prince Rupert, British Columbia.

The oil line from Skagway to Whitehorse—about 100 miles—is in operation and that from Norman wells to Whitehorse—between 550 and 650 miles—will, it is said, be completed during January, 1944. Work is proceeding on the refinery at Whitehorse and it will be completed in May, 1944, according to present schedules.

The terms of the arrangement for the construction and ultimate disposal of these developments, as laid down in the exchange of notes, were that the pipeline and refinery should remain the property of the United States Government and be operated under contracts with it during the war.

At the termination of hostilities the pipeline and refinery will be valued by two valuers, one American and one Canadian, with power to select an umpire, and the Canadian Government will have first option to purchase at the amount of the valuation.

If the option is not exercised within three months the properties may be offered for sale by public tender, with the amount of the valuation as the reserve price.

The Canadian Government, on its side, agreed to acquire any essential lands and necessary rights of way, to waive, during the war, import duties, sales taxes, territorial taxes and all charges on equipment and supplies used in the execution or maintenance of the project by the United States, and to remit, during the war, royalties on oil production and income tax on individuals and corporations employed in the construction.

It was further agreed that the two Governments would not order or allow the dismantlement of the pipelines or their facilities unless or until approval is obtained from the permanent joint board on defense.

Recoverable Petroleum in Fort Norman Field Put at 35,000,000 Barrels

Recent development work in the Fort Norman oil field in the Canadian Arctic, widely publicized in connection with the United States Army's Canol oil project, has indicated the presence of recoverable petroleum in excess of 35,000,000 barrels, Standard Oil Co. of New Jersey disclosed Dec. 28 Imperial Oil Co. of Canada, Ltd., subsidiary of Jersey Standard, is owner and operator of the field.

The estimated 35,000,000 barrels of proven reserves at Fort Norman is far higher than any previous ones, most of them unofficial, which had suggested only a few million barrels at the most were in sight.

U. S., CANADA STUDY NORTHWEST REGION

Oil and Minerals, Including Tin, Abound in Area of 1,000,000 Square Miles

It took a global war to arouse the United States and Canada to the realization of the North Pacific region's strategic value from a purely military point of view. Now they have joined hands to extend their wartime collaboration to future peacetime development.

It is an untamed land with pink snows, deep green rivers and rainbow-festooned midnight skies comprising 1,000,000 square miles of the Northwest Territories. British Columbia and Alberta, says The Associated Press.

The two nations have begun the North Pacific planning project, the first step of which is to study the area preliminary to considering proposals for developing its resources, improving living standards and increasing the population, now a mere 100,000.

It was last August that the National Resources Planning Board suggested to the co-chairmen of the Joint Economic Committees of both countries that the possibilities of the North Pacific region would merit careful study.

Long-Range Aims Announced

The joint committees decided almost immediately to sponsor such a survey, and already these long-range aims have been announced:

1. Enhanced security for Alaska, Canada and North America through well-conceived development of the North Pacific.

2. Positive and active use of the area as a strategic key in the post-war system of world security.

3. Development of the resources and transportation advantages as contributions to a better balanced continental economy.

4. Development of economic opportunity for demobilized servicemen and others who are adaptable to the region.

5. A demonstration of the potential benefits of international collaboration in the development of backward and unoccupied areas; a testing of the various devices for implementing collaboration between all the governmental and corporate organizations and commissions and treaties between the two nations.

Much of the land is mountainous, with shallow, coarse soils and barren rock; 95 per cent of the area is almost entirely uninhabited, with the present population concentrated mostly in small sections such as the railroad belts of the Canadian National and Alaska lines and along the coast of southeast Alaska; the temperatures range from 70 below zero to 90 above, but granting those drawbacks there also are advantages:

Fine agricultural land in the valleys of the Peace, Bulkley-Nechako, Matanuska and Tanana Rivers; timber along the coast as far west as Kodiak and in the Prince George section; the greatest salmon fishery in the world in the coastal waters; minerals scattered profusely over the whole region, including the largest tin mines of North America near Wales on the tip of the Seward Peninsula; oil resources at Norman Wells on the Mackenzie River and at McMurray, only 300 or so miles north of Edmonton, Alberta.

Special arrangements for interagency cooperation on the project already have been worked out.

J. C. Rettie U. S. Co-Director

On the American side, the National Resources Planning Board has provided the full-time assistance of its Alaska regional office staff, with headquarters at Portland, Ore. James C. Rettie of Portland has been designated United States co-director. Actively participating are the Departments of State, Agriculture and Interior, the Board of Economic Warfare, together with Federal and territorial agencies in Alaska.

On the Canadian side, Dr. Charles Camsell, deputy minister of the Department of Mines and Resources has been named Canadian co-director, with agencies of the Dominion and of the provincial government of British Columbia cooperating.

All those concerned stress that the specific boundaries of the territory to be considered have not yet been clearly defined pending the outcome of the study.

Best explanation came from Mr. Camsell, who said the territory embraces part of Alberta, the northern half of British Columbia, the Yukon Territory, Alaska and the Mackenzie River portion of the Northwest territories. He said the eastern boundary would take in territory which had any bearing on the economic aspect of the new Canada-Alaska highway and its related air routes.

Flyers Saved by Mirror After 10 Days on Rock

Distress Signals of Marooned R. A. F. Crew of 3 Seen

MONTREAL, Nov. 18 (UP).—Three airmen of the Royal Air Force Transport Command owe their lives to a small metal mirror which they used to signal for help after surviving ten days of exposure to Arctic tempests on the peak of a submerged mountain jutting from the Polar Sea, it was disclosed today.

The pilot, Captain Robert E. Coffman, of Baton Rouge, La.; the navigator, Flying Officer Norman E. Greenaway, of Camrose, Alberta, and Radio Officer Ronald E. Snow, of Digby, Nova Scotia, are recuperating at the Royal Victoria Hospital here.

The three men were flying to British Columbia from Great Britain over the Iceland-Labrador route when engine trouble forced them to land on the sea. For twenty-four hours they paddled a rubber dinghy through icefields to land on a barren, snow-covered rock, where they remained ten days.

On the afternoon of the eleventh day a converted Norwegian whaler hove into sight. By a miraculous chance, Major John Crowell, an American officer, noticed the distress signal flashed by the metal mirror used by the stranded airmen. The rescue vessel landed them in Greenland, where they were transferred later to an American Coast Guard vessel.

Priests Explored Canadian Wilds

WASHINGTON (UP) — Father Artheme A. Dutilly, research associate of Catholic University's Graduate School of Arts and Sciences, has returned here with 3,000 specimens of plants, rocks and insects obtained during a journey into unexplored wildernesses of Hudson Bay Territory. He left Washington last June and was joined at Ottawa, Ont., by Father Ernest LePage, instructor in the College of Agriculture at Rimouski, Que. To make their 2,500-mile journey they used train, motor boat, canoe and airplane.

MUSK-OX HERDS GAIN IN CANADA

Help to Swell 'Polar Cattle' Resources Are Needed to Develop Vast Northland

War's drain upon Canada's resources has drawn attention anew to the Dominion's northlands and their great material potentialities

Eventual development and exploitation of these vast Arctic regions, however, depend to a large extent upon the sparse native population, both Eskimo and Indian, whose effective cooperation can only be assured if their food supply is conserved and its basis broadened. Hence the need for the establishment of native reindeer herds and for protecting the big game—caribou and musk-ox.

One of the most interesting of all big-game animals in Canada, if not in the world, is the musk-ox, the Canadian Railway Magazine points out, one of whose characteristics is the circle method of defense against its enemies. The circle formation originally was evolved as a protection against wolves. When, therefore, they were hunted with dogs, they instinctively took up this fighting position noble and magnificent in courage but quite helpless against high powered rifles.

Once Near Extinction

The decline of these lordly animals of the Barren Lands, like that of the plains buffalo, was stopped only when they were on the threshold of extinction. In 1927, the Dominion Government set aside an area of 15,00 square miles along the Thelon and Hanbury Rivers east of Great Slave Lake, for the protection of the largest known remaining herds of musk-oxen on the Canadian mainland. No one in Canada is allowed to hunt musk-oxen nowadays.

The present increase is very slow, even in the Thelon Game Sanctuary. So far as can be ascertained only one or two calves a year in a herd of ten musk-oxen is the normal increase, the cows calving only in alternate years. Recent observations, however, disclose that this increase is steady.

Reports from native hunters make it evident that there are now herds of musk-oxen north of Great Bear Lake, where they have not been known since before the last war. Other herds have been reported on Bathurst Inlet; but altogether it is estimated that there are not more than 1,200 musk-oxen on the whole of the Canadian mainland. There are, of course, additional herds on some of the Arctic islands and in Greenland.

The "polar cattle," as they are sometimes called, have persisted in winter in places not frequented by wintering caribou and would, therefore, widen considerably the area in Canada's northlands where animal husbandry could be successfully practiced by the natives.

In time this animal may become a "beast of burden" as well as a source of dairy products for the natives. But the present necessity is to preserve the species so that it may be available for such experiments when the time arrives.

Alberta Gets Bulkley Journal

EDMONTON, Alberta, Dec. 17 (CP).—The historic Bulkley journal, a diary and record of Colonel Charles S. Bulkley, of the United States Army Engineers, who pioneered a telegraph line through Canada's Northwest to Alaska more than eighty years ago, was presented to the Alberta government today by Brigadier General James A. O'Connor, officer commanding, United States Northwest Service Command.

Peace River Bridge Presented To Canada in Alaska Road Link

FORT ST. JOHN, B. C., Aug. 30 (Canadian Press)—A link in the friendship of Canada and the United States was added today with the presentation to the Dominion of the 2,275-foot suspension bridge on the Alaska Highway over the Peace River. The ceremony was complete with frills and color, marking official opening of the American-financed structure.

The opening was described as "symbolic as the first movement of cargo traffic on a large scale indicates just another link in the wide highway we can see to peace for the world" by Senator James C. Scrugham, Nevada Democrat.

Maj. Gen. Philip B. Fleming, Works Administrator, termed the bridge "an important link in the armor of the North American continent."

Herbert Anscomb, Minister of Public Works for British Columbia, represented Premier John Hart in receiving the bridge.

"I accept this bridge," he said, "in the name of the Dominion and Provincial Governments. It will be a binding link between the two great nations in the North American continent."

W. A. Fallow, Alberta Public Works Minister, who represented the Province at the offical opening of the highway last November at Kluane Lake, Y. T., acted in the same capacity today.

The Canadian Army was represented by Maj. A. Robertson, on the staff of Maj. Gen. W. W. Foster, Special Commissioner for Northwest Service Projects, and Maj. J. H. Mobberley of Winnipeg, who represents the Canadian Government on the Alaska Highway Civilians Control.

Mr. Anscomb and Senator Scrugham, head of a six-man Senate subcommittee making an inspection tour of the Alaska highway area, combined to manipulate the scissors cutting the red, white and blue ribbbon stretching across the southern entrance to the bridge. Immediately after this ceremony a convoy of six material-loaded trucks rumbled across the span and proceeded north.

Ceremonies were opened by Brig.-Gen. James O' Connor, commanding officer United States Northwest Service Command, who termed the opening "an historic threshold in the development of our Continent."

The bridge is the largest of a network strung over streams and rivers in the path of the 1,600 mile Alaska Highway route. A steel structure with a two-way 24-foot concrete traffic deck, it is a few hundred feet shorter than Vancouver's famed Lions Gate Bridge. It was built at a cost of $1,500,000.

It has a main span of 930 feet and two side spans of 465 feet each with two approach spans of 135 feet each. Steel girders tower 190 feet above the six-inch concrete deck which is 100 feet above the river level.

Army Eases Travel in Alaska

HEADQUARTERS, Alaskan Department, Nov. 17 (AP)—Easing of travel restrictions throughout most of Alaska, effective Dec. 1, was ordered today by Lieut. Gen. Simon Bolivar Buckner Jr. after that date civilian travel within the territory, except on the Alaska Peninsula and in the Aleutians, will be virtually without restrictions.

Eskimos Not 'Buying' When Tax Explained

OTTAWA, Oct. 16 (AP)—Income taxes have come to the Eskimos, who once insisted they didn't want to "buy" any.

Inspector D. J. Martin of the Royal Canadian Mounted Police said Oct. 15 that good fur catches and attractive prices have brought prosperity to the hunters.

This prosperity caused the Eskimos to be introduced to taxation.

When the Mounted Police began explaining the taxes to the Eskimos, however, they informed politely that the natives weren't interested in "buying" any.

Eventual understanding followed profound explanations but the labor still falls on the shoulders of the Mountie, who must complete the Eskimos' income tax forms and make the assessments.

Arctic Ice Blocks Trial In Slaying a Second Year

Ship With Officials Again Fails to Reach Fort Ross

OTTAWA, Oct. 14. (UP).—The slaying of Angootacoyomayo, a Pelley Bay Eskimo, will remain a mystery until next year, and whether it will be solved then depends upon Arctic weather permitting a Hudson's Bay Company ship to get through to Fort Ross on the north shore of Bellot Strait—the famous ice-filled Northwest Passage.

The companys ship, Nascopie, has just failed for the second successive time to reach Fort Ross with officials who would try the suspect in the case, the Eskimo's wife. Angootacoyomayo allegedly was killed with a rifle last winter.

When word of the slaying reached him, Constable C. L. De Lisle traveled by dog team from his post at Pond Inlet on the north shore of Baffin Land, 400 miles over ice. He passed weeks gathering witnesses and obtaining the body of Angootacoyomayo, which he found perfectly preserved in the ice.

All was in readiness for the trial when the Nascopie made her first attempt to push through to Fort Ross. Ice began closing around the ship, and she swung around and headed back for the open sea. Constable De Lisle settled down to sit out the postponement.

Again this year Constable De Lisle, the natives and three employees of the Hudson's Bay Company waited patiently for the ship to bring in supplies and mail. The Nascopie came almost within sight of the tiny post, but again the ice began to jam around the ship, and finally she had to give up the attempt and turn back.

Saved From Arctic Outpost

Two Men and a Woman Are Taken From Fort Ross by Plane

WINNIPEG, Man., Nov. 14 (AP).—A rescue plane bringing two men and a woman from Fort Ross after a supply ship had failed to reach that post-hamlet in the Arctic for two years landed at Stevens Field, Winnipeg, last night. Those rescued were the post manager, W. A. Helsop, Mrs. Helsop and D. W. Munro, the post clerk.

An American Douglas troop carrier went for them after they announced by radio that the post was almost out of supplies.

OTTAWA, Oct. 13 (AP)—The isolation of three men and a woman at Canada's northernmost trading post—400 miles north of the Arctic Circle—was disclosed today, and authorities promptly began plans for their rescue by long-range plane.

Mr. and Mrs. W. A. Heslop, D. W. Munroe and C. L. de Lisle, a Royal Canadian Mounted Police constable, are at Fort Ross, 1,000 miles north of Churchill, Man., above ice floes that for two years have kept away the regular supply ship. Mr. Heslop, manager of the Hudson's Bay Company trading post there, sent word of their plight by radio, saying that only one month's food supply remained. The post had kept two years' supply on hand, this being replenished annually by a ship that has not been able to penetrate the floes lately.

The trading company asked the Royal Canadian Air Force for aid. The RCAF is negotiating with United States authorities, but if American help cannot be arranged an RCAF VLR (Very Long Range) plane will probably make the flight.

DR. GERARD DE GEER, SWEDISH GEOLOGIST

He Investigated Phenomena at Spitzbergen—Conducted 2 Expeditions in U. S.

Baron Gerard de Geer, Professor of Geology of the University of Stockholm from 1897 to 1924, founder of the Geochronological Institute there and author of many works on glacial and post-glacial problems, died July 24 in the Swedish capital, the American-Swedish News Exchange reports. His age was 84.

Dr. de Geer was an international authority within his extensive field of research, embracing not only Sweden and adjacent areas during the Ice Age but also geological phenomena in Spitzbergen, which he investigated in collaboration with Russian experts.

He also was interested in North American geological peculiarities, visiting the United States in 1891 and again in 1920 as head of scientific expeditions. On the latter occasion he also toured Canada.

Results of Measurements

To an interviewer Baron de Geer said that his cross-section measurements of soil in Sweden, carried out since 1878 in all parts of the country, showed a similarity, which, he stresser, seemed to embrace also North America, according to measurements made by him during his visit in 1891.

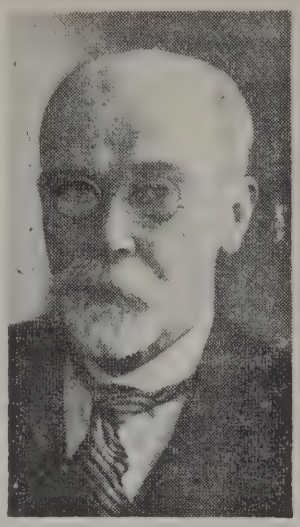
In recent years, Dr. de Geer gave most of his time to investigations in geochronology, the special branch within geology which he had introduced to the International Geological Congress at Stockholm in 1910.

By counting and measuring the various sediments in the clay deposits and other earth layers he established a time register—"the Swedish time scale"—embracing about 16,000 years, or the whole period from the height of the Ice Age. On the basis of these researches he formed a theory on Sweden's geological and geographical development during the late Quaternary Era.

Besides the exact geochronology which the understanding of these earth layers give, they offer a 16,000-year record of the earth's periodically changing climate.

In one of the institute's rooms, Dr. de Geer had on display a cross-section of Sequoia gigantea, the California Redwood, a gift of a friend in the United States. It has 1,600 year rings.

Baron de Geer leaves a widow, the former Ebba Hult, who was a student in the Botany and Mineralogy Departments of the University of Stockholm at their marriage. She had worked with her husband wherever his studies took him.



BARON GERARD DE GEER

Capt. Yeandle Is Dead, Officer In Coast Guard

ST. LOUIS, Nov. 30—Capt. Stephen S. Yeandle, senior naval officer in the St. Louis area and district Coast Guard officer of the Ninth Naval District, with headquarters here since July, 1941, died last night at his home in this city at the age of 54. Despite ill health, he had continued on active duty until five weeks ago.

Captain Yeandle was born in a small Georgia town; was graduated from the Coast Guard Academy in New London, Conn.; commissioned a lieutenant and named, in 1911, second in command of the cutter Yamacraw, serving on the Atlantic seaboard. For his work in saving two men from drowning while in charge of moving 200 persons from the steamer Lexington, which went aground off South Carolina during a hurricane, the young lieutenant received the Congressional Gold Life-Saving Medal.

Captain Yeandle carried out the huge expansion program of the Ninth Naval District's Coast Guard personnel, and was in charge of its activities on 5,400 miles of inland waterways during floods and other river disasters of the last three years.

Compiled Aleutians Data

ST. LOUIS, Nov. 30 (AP)—Captain Yeandle received his commission from the Coast Guard Academy in 1911 and spent three years with patrols in the North Pacific and Bering Sea. A set of instructions he compiled during a tour of duty of the Aleutians is still used by the Coast Guard in those waters.

A short time after finishing at the academy, Captain Yeandle was shipwrecked in Bering Sea, not far from the Aleutian Islands. For three days he was in command in an open boat. He pulled a hand with his crew, whom he landed at an island where they were picked up.

Capt. Armitage, Polar Explorer, Dies in London

Was Second in Command of 1894 Arctic and 1901 Antarctic Expeditions

LONDON, Nov. 2 (AP).—Captain Albert Borlase Armitage, second in command of the Jackson-Harmsworth North Pole Expedition in 1894-'97 and the British National Antarctic Expedition in 1901-'04, died today at the age of seventy-nine.

The son of a physician, Captain Armitage began his career at sea at the age of sixteen as an apprentice, rising through the ranks to become commodore of the P. & O. Steamship Line in 1923. He saw active service on convoy duty during the World War, once having his ship torpedoed under him.

Joined Expedition in 1894

Captain Armitage, a sub-lieutenant in the Royal Naval Reserve in 1892 while serving as an officer on commercial sailing vessels, was lent to the Jackson-Harmsworth polar expedition in 1894.

The expedition, led by F. G. Jackson and financed by A. C. Harmsworth (Lord Northcliffe), sailed on the vessel Windward which reached Cape Flora in the fall of 1894. There the party of eight wintered in log houses and in the spring of 1895 penetrated to 81 degrees 19 minutes, the nearest point to the pole attained to that time.

Four years after his return in 1897 he was commissioned a lieutenant in the Royal Naval Reserve and was lent to the Antarctic expedition sponsored jointly by the Royal Society and the Royal Geographic Society.

The party, led by Commander R. F. Scott with Lieutenant Armitage second in charge, sailed from England in the 700-ton Discovery, a specially built ship. The group surveyed the south edge of the Ross Barrier and discovered land which they called King Edward Land.

A permanent base was established at McMurdo Sound at the southwest corner of the Ross Sea. There the expedition passed an Antarctic winter. In the spring two overland expeditions left the base for points farther south. The one led by Commander Scott was halted when the sled dogs died. Lieutenant Armitage, however, blazed a route to a huge plateau to the west. Commander Scott followed the route the next year to reach a point 300 miles from the base and 8,000 feet above sea level.

Meanwhile, the Discovery was locked fast in the ice and the Royal Navy dispatched relief ships with orders for the expedition to abandon their base vessel and return to England. At the last moment, however, on Feb. 16, 1904, the Discovery broke ice and Lieutenant Armitage's party sailed her home without loss of life or equipment.

Captain Armitage was born at Balquihidder, Perthshire, Scotland. He became a sublieutenant in the Royal Naval Reserve in 1892. After his part in the Jackson-Harmsworth expedition, he was promoted to lieutenant. On the British National Antarctic expedition in 1901-04 he served as navigator of the vessel Discovery. He was the first man of the expedition to set foot on the Antarctic Continent after crossing the ice caps of Victoria Land. For his work he received the King's Medal and the Royal Geographical Society Medal. In 1907 he was promoted to lieutenant commander and received the Royal Naval Reserve decoration. He became a captain, retired, in the Royal Naval Reserve in 1923 and retired from the P. & O. in 1924.

He was the author of "Two Years in the Antarctic," "Cadet to Commodore" and "Cold Lands." He was a former resident governor of the Royal Merchant Seamen's Orphanage, Bear Wood, Wokingham, England.

CAPT. GEORGE A. HOWE SR.

Oldest Alaskan Sourdough in U. S.—Dies on Coast at 95

FRESNO, Calif., Nov. 11—Capt. George Albert Howe Sr., reputedly the oldest Alaskan sourdough in the United States, whose father was one of the guards of the conspirators in the assassination of Abraham Lincoln, died here last night in the home of his son-in-law and daughter, Mr. and Mrs. Harry E. Scott. His age was 95. Born in Hallowell, Me., he had resided in Fresno for the last twelve years.

Captain Howe came to the Coast on one of the earliest trains to make the overland journey in 1869. A few years later he made his first trip to Alaska and in 1886 established the first trading post in Turn-Again-Arm in the Cooks Inlet country.

Captain Howe guided three expeditions into Alaska for the Government, taking Captain Abercrombie and his party from Prince William Sound to Copper Valley for a military road survey. He took the Glenn expedition into the Cooks Inlet country for mapmaking and then joined Commissioner Wiggins in Seattle to explore the Kodiak, Big Minook and Cooks Inlet.

DR. HALDOR BARNES

Was With Byrd on His First Expedition to Antarctica

MANITOWOC, Wis., Sept. 14—Dr. Haldor Barnes, who was with the first Byrd expedition to Antarctica and who practiced medicine here until a few months ago, died in Toledo, Ohio, yesterday, Manitowoc friends were advised today. He was 48 years old.

Dr. Barnes and his family lived here for a year, leaving last May. He was a graduate of the University of Denmark. He leaves a widow, a daughter and a son in Toledo and his mother and two sisters in Denmark.

DR. ALES HRDLICKA, ANTHROPOLOGIST, 74

Curator at National Museum Sought Origin of Human Race —Dies in Washington Home

WASHINGTON, Sept. 5—Dr. Ales Hrdlicka, one of the world's foremost anthropologists, died this morning at his home, 2900 Tilden Street, N. W., after a heart attack. His age was 74.

He leaves a widow, a nephew, Dr. Joseph Zelenka of Washington, and three brothers, Henry, Maximilian and Joseph Hrdlicka of New York.

Dr. Hrdlicka retired from the Smithsonian Institution a year ago, but he wished to continue work in wartime, and the institution restored him to active status.

Found Skull With Record Brain

WASHINGTON, Sept. 5 (AP)—Dr. Hrdlicka found in 1936 in the Aleutians what fellow-workers at the Smithsonian Institution called the skull which housed the largest human brain of record in the Western Hemisphere. The skull, believed to have belonged to an Aleut who lived hundreds of years ago, had a brain capacity of 2,005 cubic centimeters. The average man has about 1,450 cubic centimeters.

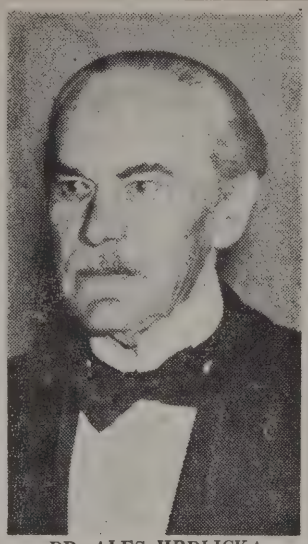
Bringing down to the layman some of his findings, the Smithsonian once reported that the anthropologist had found why it is that old friends sometimes find it hard to recognize each other after years of separation. Dr. Hrdlicka explained that it was quite natural, that as a person grows older his nose gets longer and broader, his ears get larger and his mouth wider.

Dr. Hrdlicka devoted his life to the pursuit of the answers to two riddles of the human race. In many countries of the globe he calibrated the human skull, prehistoric and contemporary, in an effort to discover whence man sprang and what degree of intellectual development he had and would achieve.

He was born, the son of a cabinet maker, in Humpoletz, Bohemia, on March 29, 1869, and at the age of 13 came to this country with his father.

From 1898 until 1939, Dr. Hrdlicka traveled over the world on one expedition after another, searching for the origin of the human race among anthropoid and early human skulls. He sought also the key to the phenomenon of prehistoric migration, attempting to establish accurate, scientific explanation for the presence of similar racial types upon widely separated continents.

Dr. Hrdlicka was plunged deeply into the popular scientific controversy over the issue of whether human life existed on the American continent in pre-historic times. He contended that it did not and that man migrated here from Asia, through Alaska, at a comparatively late period. To prove this contention he did much research work in the Aleutian Islands, reporting his findings in hundreds of articles in scientific and popular publications.



DR. ALES HRDLICKA

Lieut. Comdr. de Ganahl Died With Gen. Upshur and Paddock

WASHINGTON, July 23 (U.P.)—The Navy today identified three of the four men who perished in the Sitka plane crash which also killed Maj. Gen. William P. Upshur and Capt. Charles W. Paddock, Marine Corps.

It listed the dead as follows:

Lieut. Comdr. Joe de Ganahl, 40, pilot. His widow, Mrs. Josephine de Ganahl, lives at Juneau, Alaska. Their permanent residence is McLean, Va.

Harold Julian Morris, 23, aviation chief radio man, whose mother, Mrs. Vesper A. Morris, lives at Cedar Rapids, Iowa.

Donald Glen Whetsone, 21, aviation machinist's mate, whose father, Guy Milton Whetsone, lives at Minerva, Ohio.

The other victim was an Army sergeant whose name was withheld pending notification of his next of kin.

Went on Byrd Trips

Lieutenant Commander Joe de Ganahl formerly was a member of the staff of the New York Herald Tribune, and accompanied Rear Admiral Richard E. Byrd on his last Arctic and first Antarctic expeditions. He was thirty-nine years old.

He was born in Tampico, Mexico, the son of the late Charles F. de Ganahl and Mrs. Florence W. de Ganahl. He lived at various times in Scarsdale, N. Y.; Bronxville, N. Y., and White Plains, N. Y., attended Hackley Preparatory School in Tarrytown, N. Y., and was graduated from Harvard in 1924. He took post-graduate work at Yale.

Commander de Ganahl entered newspaper work in New Haven, Conn., and later became City Hall reporter for "The White Plains (N. Y.) Daily Reporter," after serving on the staff of the Herald Tribune in 1927, writing chiefly on naval aviation subjects.

His interest in aviation developed actively while he was a White Plains reporter and he acquired his own plane. He and Mrs. de Ganahl, the former Miss Mary Josephine Coombs, took frequent week-end trips all over the country. On one such trip in 1933 they were forced down on a golf course at night in Cleveland.

He was one of several members of the Byrd North Pole expedition to be selected by Admiral Byrd for his first South Pole expedition. He passed two years in the Antarctic in 1928 and 1929, and wrote stories of the adventure for "The New York Times." Officially, he was navigator of the Byrd sledge party.

Commander de Ganahl went to Washington from White Plains as an employee of the Federal Alcoholic Beverage Control Board. He studied law, and was licensed to practice in Virginia and the District of Columbia. He was counsel for the Federal A. B. C. for a time.

He held a commission as Ensign in the Naval Reserve, and was called to active duty after the attack on Pearl Harbor.

Surviving, besides his mother and his wife, are a son, Charles; a daughter, Sarah, and two brothers, Carl de Ganahl, of Trenton, N. J., and Frank de Ganahl, of Riverton, N. J. His wife and children are in Juneau, Alaska.

FRED. RAMM DEAD; NORWEGIAN EDITOR

Sent Famous Message From Dirigible Norge at North Pole to The Times

LONDON (Reuter), Nov. 16—Fredrik Ramm, former editor-in-chief of Morgenbladet and leading member of the Oxford group in Norway, died yesterday at Odense, Denmark, on his way from a concentration camp in Germany back to Norway, the Norwegian Telegraph Agency said today.

Mr. Ramm was sentenced to life imprisonment by a German court martial in September, 1941, during the first state of emergency declared in Norway by the Reich commissar, and was then sent to Germany. When he recently contracted double pneumonia he was released from the concentration camp and obtained permission to return to Norway.

Fredrik Ramm was THE NEW YORK TIMES correspondent on board the dirigible Norge of the Amundsen-Ellsworth-Nobile expedition's flight from Kings Bay, Spitzbergen, to Teller, Alaska, over the North Pole, in the spring of 1926.

In this capacity he sent by radio one of the most famous messages in the history of exploration. It bore the date line, "North Pole, May 12, 1926," and read, "We reached the North Pole at 1 o'clock today, and lowered flags for Amundsen, Ellsworth and Nobile."

When Admiral Peary reached the North Pole, a lapse of five months followed before he could send from Labrador his first dispatch to THE NEW YORK TIMES, but seven hours after Ramm gave his message to the Norge's operator it had reached THE TIMES office in New York via Spitzbergen and Norway. As Russell Owen wrote of the event: "Nothing could have been more significant of the passing of the old order; the world could now keep up with its heroes."

From the time the Norge left Kings Bay on the morning of May 11 until shortly after she passed the North Pole on her way to Alaska, Mr. Ramm sent by radio to THE TIMES vivid accounts of her position, flying conditions and descriptions of the terrain below and the reactions of the officers and crew.

WORLD WEATHER CHARTED

Quartermaster Corps Follows Condition Over Globe

The weather, once a fickle military ally at best, has been harnessed to the service of the United States Army by Quartermaster Corps scientists, the War Department reports.

Until the entry of this country into World War II, the weather was regarded as the ally of the strongest army in much the same reasoning Napoleon used when he declared "Pr idence fights on the side of the biggest battalions." Today, operating on the more modern theory that the weather favors the armies best equipped to cope with it, the Quartermaster Corps, has mobilized the weather on a world-wide scale.

In a wing of the Office of the Quartermaster General in Washington, a small crew of military and civilian scientists has worked out charts showing the exact type of climatic conditions existing each month of the year in virtually every section of the world. Only a few localities have been omitted. They represent areas where it is inconceivable that American troops may ever be called upon to fight, such as remote parts of northern Siberia where the thermometer sometimes reaches a temperature of 85 degrees below zero.

Reindeer Draw Russian Supplies

Reindeer are playing an important part for Russia in war on the most northerly sectors of the front. Ideal sites for airfields are furnished by the vast frozen desolate stretches of Arctic tundra behind the lines. All supplies for the air force there—food, fuel and bombs—are carried on sledges drawn by reindeer teams.

Soviet Women Ferry Pilots

EDMONTON, Alberta, Nov. 24 (CP).—Russian women pilots are playing a role in lease-lend by piloting planes from Alaska to the Russian front after they have been flown to the Far North from American factories, it was revealed today

AMERICAN ANTARCTIC DISCOVERIES, 1819-1940

WILLIAM HERBERT HOBBS
Emeritus Professor of Geology, University of Michigan,
Ann Arbor, Michigan

PROCEEDINGS: EIGHTH AMERICAN SCIENTIFIC CONGRESS

The United States, though geographically near the northern polar region, has played no unimportant role in the discovery and exploration of the Antarctic continent. It was in fact a New England sealing captain who first discovered this sixth of the world's continents, and the unveiling of the last and most difficult long stretch of Antarctic coast has been accomplished in this year of grace 1940, almost a century and a quarter later by one of the greatest of polar explorers.

It was by the First United States National Exploring Expedition, that commanded by Lieutenant, and later Rear Admiral, Charles Wilkes, that in January and February of 1840 the continental nature of the Antarctic land was first demonstrated, and it was the Second National Expedition commanded by Admiral Byrd which in January and February of 1940 so nearly completed the delineation of the Antarctic coast.

Antarctic exploration began in 1820 and was continued vigorously in the years 1839 to 1841. Interest then waned, to be revived at the opening of the new century by several European nations, British, French, German, Swedish, and Norwegian. The United States was, during the later half of the nineteenth century, much occupied by Arctic expeditions, and when the revival of interest in the Antarctic came at the opening of the twentieth century, Peary was launching his attacks upon the North Pole. So it came about that America had no part in the second great period of Antarctic exploration. A third great period was opened with the introduction of the airplane to exploration, and in this the Americans Byrd and Ellsworth played the major roles.

The initial steps toward definite Antarctic discoveries were made when sealing captains, both British and American, discovered the South Shetland Islands, which lie within the American sector of the Antarctic some four hundred miles southeast of Cape Horn. Up to the year 1819 the sealers from various countries had all operated north of the sixtieth parallel of south latitude. The Shetland group, situated between latitudes sixty-one and sixty-three degrees, appears to have been first seen in February, 1819, by William Smith, a British merchant captain, and a landing was made from his brig *Williams* on an eastern island of the group on October 15th of that year. Within a few weeks at most from this landing—the date has not been definitely determined—islands within the western section of the group were visited by the Argentine ship *Espirito Santo*, chartered and manned by British, and a few days later by the American brig *Hersilia*, Captain J. P. Sheffield. These discoveries were accomplished independently of each other, though both knew something of the discovery made in February by the *Williams*. Credit for the American landfalls goes to the second mate of the *Hersilia*, Nathaniel Brown Palmer, who had obtained the scant information concerning the earlier British discovery, and who very cleverly laid the course for the *Hersilia* to the western islands of the group.[1]

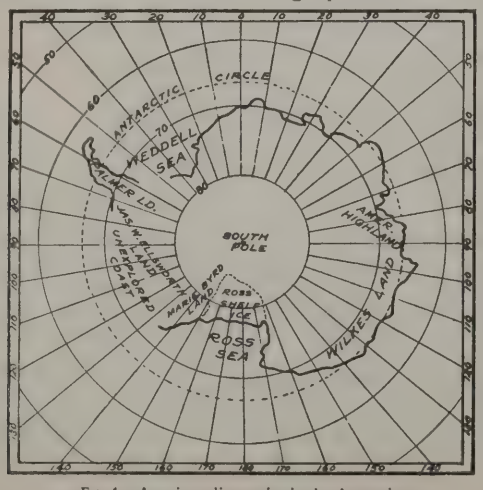


FIG. 1.—American discoveries in the Antarctic.

[1] W. H. Hobbs, The Discoveries of Antarctica within the American Sector, as Revealed by Maps and Documents, *Trans. Amer. Phil. Soc.*, N.S. vol. 31, pt. I, Jan. 1939, pp. 1-71, pls. 1-31, figs. 1-10.

Both the *Espirito Santo* and the *Hersilia* obtained full cargoes of seal skins, and as a consequence in the following year no less than eight sealing vessels went to the islands from the Connecticut port of Stonington alone. This fleet was under the command of Captain Benjamin Pendleton and its combined tender and exploring vessel was the little sloop *Hero*, commanded by Nathaniel Brown Palmer, the hero of the discoveries in 1819 and now advanced to the rank of captain. The log of this tiny sloop, which was of 44-tons burden and less than fifty feet in length, has been preserved by Palmer's relatives and is now deposited in the Library of Congress at Washington.[2] This log shows that the *Hero* acted as exploring vessel for the sealing fleet and found, among other new discoveries, Deception Island off the south margin of the island chain and an important harbor which was named Port Williams. This small island is a volcano breached on one side and partially submerged so that the crater is invaded by the sea to form a hidden and nearly land-locked harbor. A lookout station was set up upon the lofty rim of the crater and from this station on November 17th, 1820, land was descried far off to the southward. The veteran sealer, Edmund Fanning, in an account always rather vague and written thirteen years later when he was an old man, states that this land was first seen by Captain Pendleton. However, according to Mrs. Priscilla Loper, Captain Palmer's niece who preserved his records, it was first seen by Palmer himself. This is moreover the more likely, since the young captain was noted for his keen vision and would in any case at once report so important a discovery to his superior, the commodore of the sealing fleet. The event has wide interest since it was the first view obtained by anyone, so far as is now known, of the Antarctic land.

Under orders from Pendleton, Palmer set out in the *Hero* to visit and explore the land. His complement of men to handle the little sloop consisted only of his mate and four seamen, six in all. The names of these men who first found Antarctic land have been preserved. As copied from the list in Captain Palmer's handwriting they were:

"Nathaniel B. Palmer, age 20 yrs., height 6′ ¾″, complexion light, hair light.
"Phineas Wilcox, age 28 yrs., height 6′ 0″, complexion light, hair light.
"Richard F. Loper, age 21 yrs., 5′ 6″, complexion light, hair light.
(Three above born in Stonington)
"Stanton Burdick, age 16 yrs.
"Peter Harry, age 31 yrs., Blackman, dark.
"All citizens of the United States.
"The within list contains the names of the crew of the sloop 'Hero' sworn to July 25, 1820.
"Signed, Nathaniel B. Palmer, Master."

The sloop in which these men sailed to discover the sixth continent was about the size of the *Niña*, smallest of the caravels in which Columbus had made the discovery of the fourth continent three and a quarter centuries earlier. The exact dimensions of the sloop are given in its registry which is preserved in the Customs House at New London, a few miles only from Stonington, Connecticut. The length of the vessel was 47 feet 3 inches, the breadth 16 feet 10 inches, and the depth 6 feet 9 inches. Its tonnage was 44 and 40/95ths tons. There is no picture of the *Hero*, but sloops constructed at the time in the New England area carried much canvas, and the height of the mainsail was probably over fifty feet. With a depth over-all of only six and one-half feet, such a vessel would be easily capsized, especially in a following wind. It called therefore for a skillful skipper, and Palmer was already at twenty years of age famous for his skill as a navigator.

Palmer came in sight of the Antarctic land in the early dawn of November 18, 1820.[3] The coast was fringed by islands, was barren and snow-covered, and the channel between islands and land was choked by ice. At the entrance to this channel, now known as Orleans Channel, Palmer took an observation for latitude and found it to be 63° 45′, a quite correct value. He cruised along the

[2] Lawrence A. Martin, The Log of Palmer's Discovery of Antarctica (abstract of paper read before the American Philosophical Society on November 26, 1937), *Science*, vol. 87, no. 2251, February 18, 1938, pp. 165-166. See also *Comptes Rendus du Congrès Intern. de Géogr.*, Amsterdam, 1938, vol. 2, sec. 4, pp. 215-218. See also *Geogr. Rev.*, vol. 30, 1940, pp. 529-552.

[3] The date has usually been given as January 14, 1821, but this is now known to be an error.

shore of the newly discovered land and returned to the Shetland Islands after an absence of seven days.

After Palmer's return from his Antarctic cruise on February 5, 1821 (January 25, 1820, in the Julian Calendar) Palmer fell in with Captain von Bellingshausen, in command of a Russian exploring expedition, who on listening to Palmer's account of his cruise and making examination of his map, gave to the newly discovered Antarctic coast the name Palmer's Land.

A few months only after the sealing fleet had returned to Stonington, a quite correct map of the South Shetlands and Palmer's Land to the south of them was published at Hartford by the well-known American mapmaker, William C. Woodbridge. This map, the first ever published which showed Antarctic land on the basis of discovery, is dated September 28, 1821.

Palmer again sailed to the south with the Stonington sealing fleet in 1821, this time in command of the surveying sloop *James Monroe,* which was about twice the size of the *Hero.* He once more cruised along the coast of Palmer's Land during the southern summer (November, December and January). On his return to the Shetlands he visited Elephant Island at the east end of the group, an island which he had discovered and mapped in 1820. Here he fell in with the British sealing captain, George Powell, and together they sailed to the eastward and jointly discovered the Powell group of islands, which were later renamed the South Orkney Islands. From this group they directed their ships southwestward, but were stopped by heavy pack ice in latitude 62° 20′ S. They then made their way back to the Shetlands, and to the American sealers Powell announced his intention to publish a map of the entire region as soon as he should return to England. He requested them to furnish for this purpose their map material. This the Americans agreed to do, and Palmer's map of the islands and of Palmer's Land must have gone to England with Powell. Instead of bringing out this map, Powell at once set off from England on another cruise to the South Seas, where he was killed by natives. His map material had been left with a friend and was soon published by the Chartseller to the Admiralty, R. H. Laurie. It was dated November 1, 1822, and ascribed to Powell alone. Since Powell had never been on the south side of the islands and had not visited Palmer's Land, it is probable that the greater part of this map was either derived from Palmer's map, or the joint work of Palmer and Powell together. It was widely published throughout Europe, and was the basis of all later maps of the region for half a century.

The years 1840 and 1841 were notable in the history of Antarctic exploration, since three great national exploring expeditions visited that region nearly opposite the American sector, and lying to the south of Australia and New Zealand. These expeditions were in the order of their entry into the region American, French, and British.

The American expedition when it entered the Antarctic region consisted of four naval vessels commanded by Lieutenant, later Rear Admiral, Charles Wilkes. After a number of uncertain "appearances" of land had been made out, when his ships were near the Antarctic Circle, land was first definitely seen on January 19, 1840. This land would appear to have been in about the longitude of Sydney, Australia. His first definite Antarctic landfall Wilkes named Cape Hudson after his second-in-command. He then cruised westward in his flagship, the *Vincennes,* for a distance of more than 1,500 miles, for much of the time in fog or storm, yet he sighted land to the southward of his course at numerous points sufficiently near to each other to indicate the existence of a continental landmass. This was the first time that such an extended coast land had been disclosed by anyone within the Antarctic area. Wilkes named it all Antarctic Continent, and the continental character has been amply confirmed by later explorations.

In the following year (1841) the name Wilkes Land was applied by German geographers to the stretch of coast which he had skirted, and as such it has generally appeared upon later maps.

On the same day that Wilkes discovered Cape Hudson, but ten hours later, the French exploring expedition under Captain Dumond D'Urville discovered land about 350 nautical miles farther to the west, and he named it Adélie Land. D'Urville did not, however, attempt to follow the coast beyond his first landfall, but at once turned north again.

The many landfalls of Wilkes from Cape Hudson westward have been challenged by many British Antarctic explorers, from Ross to Mawson, but his discoveries have now been splendidly confirmed by the Australian expedition of 1911 to 1914. Today the name Wilkes Land is found on most maps and is described in most standard works of reference.[4]

American exploration of the Antarctic was resumed upon a large scale with the introduction of the airplane and tractor into polar survey. These began to be successfully employed near the end of the first quarter of the twentieth century with the flights of Byrd from northwestern Greenland (1925). The First Byrd Antarctic Expedition which covered the years 1928-1930 was based at Little America near the margin of the Ross Shelf Ice (lat. 78° 40′ S. and long. 163° 30′ W.). This station was within a few miles of Framheim, the base of Amundsen's Norwegian expedition of 1911-1912. Byrd, on his First Antarctic Expedition, made the first conquest of the South Pole by air, surveyed a new stretch of 250 miles of Antarctic coast line lying to the eastward of King Edward VII Land, as well as the inland ice front in the far hinterland for about the same distance. Back from the newly discovered coast he explored in reconnaissance flights an extended area, Marie Byrd Land, with the Rockefeller and Edsel Ford Mountains.[5]

The Second Byrd Antarctic Expedition (1933-1935) made its base as before at Little America and by plane, tractor and dog sledge greatly extended the known areas of the hinterland to the eastward from the Ross Shelf Ice. Also by plane based upon his expedition ship, the *Ruppert,* Byrd made perilous flights within the most difficult region of the Antarctic Ocean. In longitude 117° W. he flew to latitude 72° 30′ S., in longitude 150° W. to near 70° S., and near longitude 153° W. to 72°+; but in all cases without finding land. Further, in reconnaissance flights Marie Byrd Land was much extended eastward into a snow-ice plateau a half mile in altitude, Rockefeller Plateau, and the part of Marie Byrd Land which had been seen on the first expedition was surveyed by tractor and sledge parties. Under Blackburn a sledge party ascended to the inland ice plateau along the Thorne Glacier which had been discovered on the earlier expedition. Extensive scientific studies in glaciology, meteorology, astronomy, etcetera, were carried out.[6]

That portion of the Antarctic region which lies between Palmer Land and Marie Byrd Land is undoubtedly the most inaccessible and difficult of the entire South Polar region. Up to 1930 it had defied all attempts to approach it. It was over the seas off this region that Byrd in 1934 had pushed back the borders of the unknown, though without discovering land.

Lincoln Ellsworth, American flight explorer, conceived the idea of a flight by airplane from some point in or near Palmer Land to Little America, though this represented a distance of considerably over 2,000 miles within an area entirely unknown and without the possibility of refuelling. He at first planned to carry out this flight while the Second Byrd Expedition was in occupation of its base at Little America, when weather reports could be sent out by radio. Accidents not easily foreseen and disappointments in a pilot made two expeditions fruitless, and when finally ready for this great flight, Little America had already been vacated. This required a new technique. Ellsworth now laid his plans to continue flying while visibility remained good, but to make a landing whenever it failed, though this method had never before been tried out, either in the Arctic or Antarctic. In the southern summer of 1935 with Herbert Hollick-Kenyon, his pilot, Ellsworth took off from Dundee Island near the northeastern tip of Palmer Land, and after four successive landings made according to his plans he proved the success of his method. Out of fuel at the fourth landing which was believed to be near Little America, with sledge Ellsworth and his pilot made their way to that station and occupied it until taken off by the British expedition ship *Discovery II.* He was put aboard his own expedition ship, the *Wyatt Earp,* which according to plan was already on its way to Little America to receive him. Thus was completed one of the great achievements in polar exploration. The vast region which Ellsworth flew over he named after his father, James W. Ellsworth Land, and a vast plateau was named the Hollick-Kenyon Plateau. Various ranges of mountains were discovered and placed upon his map.

By flying across Palmer Land during this transection Ellsworth was for the

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[4] William H. Hobbs, Wilkes Land Re-discovered, *Geogr. Rev.,* vol. 22, no. 4, October 1932, pp. 632-655, figs. 1-5 and folding map. See also The Discovery of Wilkes Land, Antarctica, *Proc. Amer. Phil. Soc.,* vol. 82, 1940, pp. 561-582; and figs. 1-2. Captain G. S. Bryan, The Purpose, Equipment and Personnel of the Wilkes Expedition, *ibid.,* pp. 551-560.

[5] Richard E. Byrd, Little America, Aerial Exploration in the Antarctic, The Flight to the South Pole, Putnams, 1930, p. 422, 74 illustrations and maps. Also, The Conquest of Antarctica by Air, *Natl. Geogr. Mag.,* vol. 58, no. 2, August 1930, pp. 127-238, 89 illustrations. Also, The Flight to Marie Byrd Land, with a Description of the Map by Commander Harold E. Saunders, *Geogr. Rev.,* vol. 23, no. 2, April 1933, pp. 177-209, 29 figs. and folding map. Also, L. M. Gould, Cold, the Record of an Antarctic Sledge Journey, Brewer, Warren & Putnam, 1931, p. 275, illustrated. Also, Some Geographical Results of the Byrd Antarctic Expedition, *Geogr. Rev.,* vol. 21, no. 2, April 1931, pp. 177-200, 25 figs. and folding map. Also, The Ross Shelf Ice, *Bull. Geol. Soc. Am.,* vol. 46, pp. 1367-1394, figs. and folding map, 1935. Also, Structure of Queen Maud Mountains, Antarctica, *ibid.,* pp. 973-984. Also, Glaciers of Antarctica, *Proc. Amer. Phil. Soc.,* vol. 82, pp. 835-876, illus.

[6] Richard E. Byrd, Discovery, The Story of the Second Byrd Antarctic Expedition, with Introduction by Claude A. Swanson, Putnams, 1935, p. 405, illustrations and maps. Also, Alone, Putnams, 1938, p. 296. Also, Exploring the Ice Age in Antarctica, *Natl. Geogr. Mag.,* vol. 68, no. 4, October 1935, pp. 399-474, illustrations and maps. Also, Some Geographical Results of the Second Byrd Antarctic Expedition, 1933-1935 (papers by S. Edward Roos, F. Alton Wade and Quin A. Blackburn), *Geogr. Rev.,* vol. 27, no. 4, October 1937, pp. 574-614, maps and illustrations. Also, Thos. C. Poulter, The Scientific Work of the Second Byrd Antarctic Expedition, *Scient. Month.,* vol. 48, July 1939, pp. 5-20, illustrated.

first time able to show that this far-flung land area is joined to the mainland behind it. This shows that Palmer in 1820 discovered not an island but, as he assumed, a continent.[7] It has therefore been renamed Palmer Peninsula.

In 1938-1939 Ellsworth was again in the Antarctic with his expedition ship *Wyatt Earp* and this time he carried out a flight inland from the coast of Princess Elizabeth Land in longitude 79° E. (to the westward of Wilkes Land and nearly on the opposite side of the continent from Palmer Peninsula). From the coast he flew directly inland to latitude 72° S., passing over a featureless snow-ice surface. He laid claim to the country for the United States for an area extending from 69° S. to 72° S. and thence 150 miles further south, and also 150 miles on either side of his course. This area he named the American Highland.[8] The American discoveries within the Antarctic are represented upon the sketch map of Fig. 1.

In 1939, or near the centenary of America's First National Antarctic Expedition, her Second National Expedition went out to the Antarctic under command of Admiral Byrd. Both expeditions have been made under the auspices of the United States Navy. The later expedition sailed in two ships, the *Bear* and the *North Star*. On arrival in the Antarctic two bases were set up, the one near Little America, and the other on Marguerite Bay off the western coast of Palmer Peninsula in latitude 68° south. While en route to lay down the Eastern Base, Admiral Byrd again flew from his expedition ship while off the unknown coast of James W. Ellsworth Land, and this time he was able to discover some 1,200 miles of hitherto undisclosed coast line. In doing this he nearly completed the unveiling of the Antarctic coasts. A flight carried out by Dr. Siple, who had been left in command of the West Base, was made before the light had failed. Siple flew far into the hinterland and mapped the unknown mountain front 200 miles in length and situated between the Beardmore and the Liv Glaciers.[9]

[7] Lincoln Ellsworth, My Flight Across Antarctica, *Natl. Geogr. Mag.*, vol. 70, no. 1, July 1936, pp. 1-35, illustrated. Also, The First Crossing of Antarctica, *Geogr. Jour.*, vol. 89, no. 3, March 1937, pp. 193-213, illustrated and with folding map. Also W. L. G. Joerg, The Cartographical Results of Ellsworth's Trans-Antarctic Flight of 1935, *Geogr. Rev.*, vol. 27, no. 3, July 1937, pp. 430-444, 16 figs. and folding map. Also, The Topographical Results of Ellsworth's Trans-Antarctic Flight of 1935, *ibid.*, pp. 454-462, 18 figs.

[8] Lincoln Ellsworth, My Four Antarctic Expeditions, Explorations of 1933-1939, Have Stricken Vast Areas from the Realm of the Unknown. *Natl. Geogr. Mag.*, July 1939, pp. 129-138, map and illustrations.

[9] Lt. Com. R. A. J. English, Preliminary Account of the United States Antarctic Expedition, *Geogr. Rev.*, vol. 31, no. 3, July, 1941, pp. 466-478.

New Compass Guides Our Fliers True to Target and Home Again

Facts of Bendix Device Made Public When One Falls Into Hands of Enemy— Safer Arctic Flying Is Seen

By WALTER W. RUCH

PHILADELPHIA, Oct. 13—Facts about a wholly new type of compass which is the master rather than the servant of the earth's magnetic field were disclosed today by officials of the Philadelphia Division of Bendix Aviation Corporation, where the device is being manufactured after seven years of research.

Known as the Gyro Flux Gate compass, it has made a major contribution to the success and accuracy of bombing by United Nations fliers and in itself represents the greatest advance in its field in 4,500 years, said Charles Marcus, vice president in charge of engineering.

The research and development leading to the invention of the compass took place at the Pioneer Instrument Division of the corporation at Teterboro, N. J., under the direction of W. A. Reichel, director of engineering.

The device uses the magnetic field enveloping the earth to develop minute electrical impulses which, when amplified, turn the compass indicator. The impulses are taken in through the "flux gate," which derives its name from the fact that it receives and rejects the magnetic flux from the earth.

Accurate in the Arctic

"To a group of reporters and technicians, Mr. Marcus said:

"This new compass will not go off its reading when the plane dives or climbs rapidly; it will not 'lag' or 'overshoot' during a turn, and it will not oscillate or 'hunt' back and forth in rough weather. This is particularly noticeable in the polar regions where mangetic compasses go 'haywire.'"

The invention was disclosed only because the military services are convinced that at least one of the devices had fallen into the hands of the enemy.

"There is, however, no possibility that the enemy can catch up with us," Mr. Marcus said, "because it will be impossible for them to duplicate the performance of this compass, much less to put it into volume production during this war."

A gyro flux gate compass, the men who devised it explained, can go to within five degrees of either pole before being affected by the magnetic intensity present in those zones. The ordinary magnetic compass, on the other hand, is useless when within twenty degrees of either pole.

The invention thus will be of extreme importance after the war in the development of over-the-poles flights now contemplated for cutting distances between many points on the globe.

L. A. Hyland, executive engineer for Bendix, remarked that compass failure had cost the lives of many fliers in the Arctic.

"Now," he said, "a pilot may go anywhere outside 300 miles from either pole and know that his compass will keep him unerringly on his course."

No "Correction Card" Needed

The device requires no "correction card," which is necessary with magnetic types, because it gives corrected readings at all times. The possibility of the navigator or pilot making an error in the heat of battle thus is eliminated.

"Because it is possible to locate the transmitter of this new compass at a distance from the indicating dial," Mr. Reichel said, "it is possible to find a position for it where it will not be affected by the bomb load, armor plate or other metal parts that impair the accuracy of the standard compass.

"As many compass dials as are needed, for pilot, co-pilot, navigator, bombardier, can be mounted in the ship and compass readings transmitted to them through this system."

Flux Gate Kept Horizontal

The flux gate is a triangular shaped coil, attached to the bottom of a gyroscope which by spinning at 10,500 revolutions a minute keeps the flux gate on a horizontal plane. The flux gate and gyroscope are housed in a pear-shaped metal container, from which lead lines carry the electrical energy through the amplifiers and finally into the indicator.

One of the compasses was demonstrated on the mock-up of an airplane. The model, based on a universal joint, was dipped, banked and sent through every possible maneuver except a loop-the-loop. iWth each dip or turn, however, the gyroscopically-balanced flux gate remained horizontal with the floor and the needle followed the changes in direction rapidly, without fluttering.

Because of damage which might result to the gyroscope in a loop-the-loop or upsidedown flying, Bendix experts explained that pilots entering action involving violent twists, turns and loops "cage" the gyroscope so that it turns with the plane. As soon as they are free of the fighting zone, the gyroscope is "uncaged" and the compass goes back into action.

Credit for the invention of the flux gate was given to Alfred Stewart. It was Paul Noxson who brought the flux gate and the gyroscope together, while the task of designing the final product fell to John Emerson.

A NEW COMPASS DEVELOPED FOR AVIATION

The gyro flux gate device now in production for the Army and Navy at the Bendix Aviation Corporation plant in Philadelphia.

Vast Deposits of Peat Await Alaskan 'Mining'

Packing and Shipping Found Obstacles to Development

WASHINGTON, Dec. 6.—Alaska has another virtually untouched "Klondike" in its 110,000,000 acres of peat muskegs if any one can develop satisfactory and inexpensive ways of packing and transporting the peat, according to the Department of Agriculture.

The department has concluded a preliminary survey of the peat resources of Alaska with a view to encouragement of a small-scale peat industry. Many muskegs are accessible from the coast, situated along the shores of islands and the mainland.

The survey revealed sphagnum-moss peats and sedge peats, both desirable for improving soils and for other agricultural uses. Through ages, this peat has accumulated on the surface and now forms layers from four to six or more feet deep. Only simple tools are needed to dig the peat. The surveyors made no exact estimates of supplies, but the reserves are ample.

Chief obstacles to marketing Alaskan peat are the short summer season, sparse labor supply and transportation problems. Local plants could dry, shred and pack the peat, but economic studies will be needed before the department can recommend development of an Alaskan peat industry.

Round Trip by Air To Yesterday

FAIRBANKS, Alaska (AP).—Army air corpsmen, engaged in experimental flying at Ladd Field near here, have flown from today into yesterday and returned unscathed.

Major Dale V. Gaffney, experimental station commander, and a bomber crew "past-tensed" themselves, then conjugated themselves and the plane back into the present, during a flight to Point Barrow, on the Arctic rim. The huge craft took off from Ladd Field during one of the shortest days of the year, flying north and away from the just-rising sun. But it soon left the rays of the sun behind and the men found themselves flying through the Arctic night.

At Barrow, the plane began its return flight, and presently the crew was treated to the phenomenon of the rising sun again—the same sunrise they had left behind a few hours previously.

The four-engined bomber got back to Fairbanks as the last rays of the setting sun were sending shafts over the mountains of northwestern Alaska—the second sunset the men had seen that day.

An Arctic Tern banded in Labrador was found less than four months later in South Africa, over 9,000 miles away.

The Diary of an Old-World Scientist

ALASKA DIARY,
1926-1931.
By Ales Hrdlicka.... *414 pp. Lancaster, Pa.: Jaques Cattell.*

Reviewed by
RUTH GRUBER

DR. ALES HRDLICKA is a legendary figure in Alaska. A crop of anecdotes has grown around him, filled with love, respect, and inevitably, some good-natured frontier humor. Eskimos tell you how he saved their lives by prescribing native foods. Coast Guard cutter captains tell you how he kept them waiting for hours and then breathlessly ran down the beach swinging two skulls in each hand. Nurses tell you how he inspired them to live in native villages, teaching the Indians, Eskimos and Aleuts our ideas of cleanliness, and learning from them a new dignity and joy in life.

For ten summers, Dr. Hrdlicka traveled along Alaska's rivers and coast in search of skeletal remains that might show how Asiatic man first came to America. But he was not only an anthropologist; he was a physician, and the hinterland needs doctors. He had hardly stepped aboard a Yukon River stern-wheeler when the news began to spread swiftly, mysteriously, by "mukluk telegraph," that a doctor was on the river. Women came to the boat landings with stomach ailments, men with ulcers and melancholia, children with a toothache. The good doctor examined them all, gave them cascara and prescribed fresh fish. For compensation, he asked only that they let him measure their heads with his weird anthropometric instruments.

Here, in his daily notes, which he calls "Alaska Diary," are the touching, serious, funny, arduous experiences of a man who brought to his adopted land, America, and later Alaska, not only his scientific knowledge but much of the charm and social thinking of his native Czecho-Slovakia. Every page is colored with his Old World personality. Every incident draws the portrait that Alaskans know well: the sensitive, dignified, lovable old scientist, with flowing white hair and a flowing black tie; digging graveyards, measuring skulls, examining chests, pulling teeth, fighting mosquitoes with oil, and wind and rain with an umbrella. That black umbrella is famous on the Yukon.

His love for the natives of Alaska endears them to us as few Alaskan books have done. In the Diary, it is the white man who appears to have deteriorated, while the natives of the North have remained simple, joyous and unspoiled.

The Diary does not record the more formal scientific findings of those expeditions; those results are being published now by the th Wistar Institute. But these daily notes which "have no pretense," he explains modestly, "to any literary value, nor to any virtue aside from reality," tell the story behind the conclusions he drew. Urgently he pleads for more exploration in Alaska. The steam shovels of the Army and Navy hungrily clawing the earth to build airfields and installations, are now turning up invaluable remains, which may be lost forever unless the archeologists and the Army can work together. Linguists, if they hurry, can still record the fast-disappearing Aleut language in their search for language origins to show the routes of man's migration. Ethnologists have half a million square miles to prowl through for Mongolic, American and indigenously Alaskan legends and myths. Perhaps in some cave near the Bering Sea or along the Alaska Peninsula, waiting only for the patient careful shoveling of future Hrdlickas, may lie the real and final clarification of Alaska's scientific promise.

For there is little doubt in the minds of most American anthropologists that Alaska was the natural bridge between the Old World and the New. Asiatic Man undoubtedly traveled from Siberia to Alaska, just as now, with the building of the Alaska Military Highway, Alaska looms again as the land-bridge for men moving the other way.

Until these explorations were started, scientists, working on Alaskan material, groped along indistinct paths; Dr. Hrdlicka's work has paved those paths with facts. His excavations convince him that the migrations from Siberia to America were composed not of vast nameless hordes or people sailing across the narrow Bering Straits, but of people coming in "dribbles" for thousands of years. Small family groups doubtless crossed in skin-boats and, finding new islands and lands in the New World, continued southward, unblocked by enemies. Those first travelers did not stay in the North to establish permanent dwellings; they moved "toward the sun." They reached Bristol Bay and the Alaska Peninsula, crossed the Gulf of Alaska, and from there trekked East and South to build their first permanent settlements. Their descendants peopled this more temperate land until new-comers, dribbling in from the Old World, no longer found the South free. They were forced to settle in what was left in the North.

Anthropologists will look forward to the publication of the formal scientific reports. But the layman who is interested in Alaska and who may be planning a post-war cruise down the Yukon River, will find the Diary rich in humor, adventure, rambling facts about health, natives and sourdoughs, and an understanding of the strange disease which makes any one who has traveled through Alaska and fallen in love with it, unhappy until he returns.

White, Native and Mixed-blood

HERE IS ALASKA. By Evelyn Stefansson. With a Foreword by Vilhjalmur Stefansson. With photographs by Frederick Machetanz and others. 154 pp. New York: Charles Scribner's Sons. $2.50.

IT was a piece of good luck that Frederick Machetanz, described by Mr. Stefansson as one of his most valuable Alaskan correspondents, should have started in 1940 to make a plan and to assemble photographs for this volume. After the attack on Pearl Harbor, when he dropped all civilian activities for duty with the armed forces, it was his desire that a member of the research staff which Mr. Stefansson employs in the work he is doing for the United States Army and Navy, should go on with the book, arranging the photographs, and writing the text from the material which he had brought together. His choice fell upon Mrs. Stefansson who has been closely associated with her husband in his geographical research.

The result is most happy. Mrs. Stefansson writes with sincerity and imagination of the climate and scenery, the people, industries and history of this country, known sometimes in the past as "the forgotten land," but now prominent in the news, recognized as a highly strategic point, and, as General "Billy" Mitchell put it, "the most central place in the world for aircraft."

In her well organized and thoroughly authentic book Mrs. Stefansson first tells of all phases of life on the mainland, describing in detail Unalakleet as a typical Alaskan village. Then follow accounts of the islands, beginning with the Aleutians, of so much interest and importance today, and continuing with the Pribilofs, Nuniwak Island, the St Matthew Islands and others, which may be equally important in the news of tomorrow

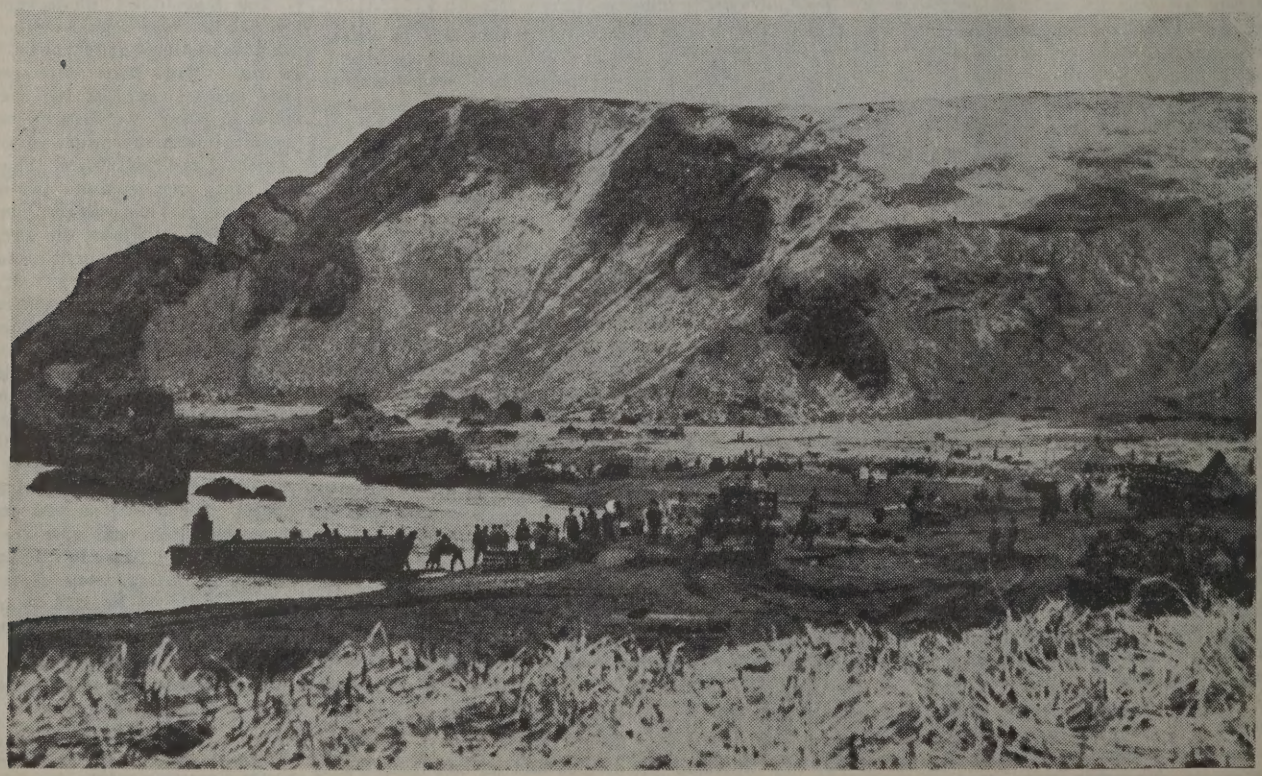
The magnificent photographs on nearly every page have been carefully selected and arranged in a way to make them an integral and exciting part of the text; through them we become acquainted with the people of the mainland and the islands. There are many fine portraits and we see the houses and villages, hunting canoes, or kayaks, the forty-foot skin boats called umiaks, dog teams and sledges. Here, too, is the wild life of the region, musk oxen, seals and sea lions, polar bear and reindeer. Views of the sea and mountain give the reader glimpses of arresting beauty and the pictures of men, women and children busy with their daily tasks and occupations, suggest a friendly, sturdy and industrious people. The style is so clear and direct that boys and girls from 10 on will find "Here Is Alaska" absorbing reading, while grown-ups as well will be glad to inform themselves from its pages.

The remarkable achievement of the United States Army Engineers, who built the Alaskan highway in a year, is graphically described in "Road to Alaska," by Douglas Coe (Julian Messner, Inc., New York. $2.50). Something of the drive and purpose of the men who put it through against terrific odds is felt in this book, which will hold the interest of boys and men alike.

IT WILL BE A WHITE CHRISTMAS FOR THE SEABEES

This is the camp of a naval construction battalion somewhere in the Aleutians

ATTU VICTORY: A CHAPTER IN THE HISTORY OF THE BATTLE OF THE PACIFIC



This shows how our forces landed supplies and materiel at Red Beach, where American troops first reached shore